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ABSTRACT

This report reviews activities of a research project having the following objectives: (1) to design and conduct an appraisal of apprenticeship programs in Illinois, with special emphasis on the role of vocational education in the present system; and (2) to provide recommendations and alternatives for building a policy framework to guide vocational education involvement with apprenticeship programs in the future. An introductory section presents the framework for the study, its design, constraints, and limitations. The section following explains and describes how the apprenticeship system works. Issues in apprenticeship are then presented, followed by a review of literature. Methodology for data collection is presented, and difficulties encountered in the collection are described. The next section presents insights yielded by the data as it pertains to apprenticeship programs in Illinois, and the final section presents a recommendation for establishing Regional Apprenticeship Advisory Boards (RAAB). The basis for such boards and their objectives are described, and strategies for organizing and operating RAABs are presented. A twenty-four-page annotated bibliography is appended, as well as sample questionnaires used in the study, and project related data. (BL)

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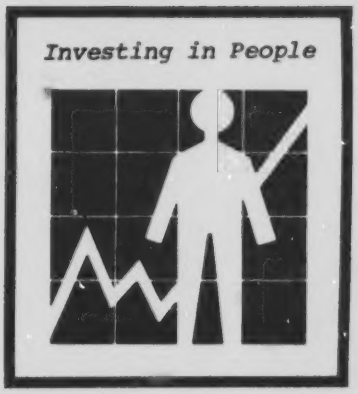


# STUDY

# OF

# VOCATIONAL EDUCATION

# INVOLVEMENT

# WITH

# APPRENTICESHIP PROGRAMS

# IN

# ILLINOIS

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ADVISORY COUNCIL ON ADULT, VOCATIONAL AND TECHNICAL EDUCATION

Suite 575 Lincoln Tower Plaza
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Springfield, Illinois 62706

JUNE 1976

CE 013 327

The points of view and opinions contained herein are those of the project staff based on information gathered for this project and do not necessarily represent the views and opinions of the State of Illinois Advisory Council on Adult, Vocational and Technical Education. All questions with respect to this study should be addressed to the Advisory Council's Executive Director

Efforts by Frank H. Cassell and Associates, Inc., in the completion of this project have been in compliance with all Federal and State regulations and/or legal requirements applicable to contractual agreements including Table VI of the Civil Rights Act of 1964 and Article III, Section 3.1 of the Illinois Fair Employment Act.

The preparation of this study was done under contract by:

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Frank H. Cassell, *President*

June 30, 1976

Mr. William E. Nagel
Executive Director
Illinois Advisory Council on Adult,
Vocational and Technical Education
Suite 575, Lincoln Tower Plaza
524 South Second Street
Springfield, Illinois 62706

Dear Mr. Nagel:

The report which follows represents the conclusion of a study which began with two objectives: (1) to design and conduct an appraisal of apprenticeship programs in Illinois, with special emphasis on the role of vocational education in the present system; and (2) to provide recommendations and alternatives for building a policy framework to guide vocational education involvement with apprenticeship programs in the future. We trust that this report will help advance understanding of these issues and add to economic growth and employment opportunities for the people of Illinois.

Despite substantial problems associated with collection of data in this field which have been experienced by every researcher who has attempted to examine relationships between apprenticeship and vocational education, we feel some new ground has been broken here for the development of a policy framework for complementary roles for vocational education in the apprenticeship system of the state. We trust that this report will be as rewarding to read as it has been for us in developing it. We especially want to express our appreciation for the support and assistance you and your staff were able to provide in helping to complete this study and in reporting its results.

Sincerely,

Frank H. Cassell

Frank H. Cassell
President

## ACKNOWLEDGEMENTS

This report represents the efforts of a great many people since the initial response of Frank H. Cassell and Associates to the request for proposals to study vocational education involvement in the apprenticeship system of Illinois in October of 1975. The initial design, preparation of materials and plan for the study were conducted by Emanuel Kohn, who also assembled the research team which completed the research. Orvis Wertz, recently retired after 35 years in the Bureau of Apprenticeship and Training in the U.S. Department of Labor, provided the relationships required to gain cooperation from unions, employers, apprenticeship program sponsors and others involved in this study. Mr. Wertz also stepped in to assume one of the most difficult burdens of this study in managing the day-to-day activities of the project when two important members of the research team became seriously ill. Ronald C. Rodgers, together with Frank H. Cassell, provided the conceptual framework for the research effort, design and development of instruments for surveys and interviews, and organization of the final report.

Several others also contributed substantially to the major tasks of this investigation. Cynthia Goldring assisted with gathering and analysis of background information, conduct and analysis of interviews, and drafts of several chapters of the final report. Burleigh Gardner and the staff of Social Research, Inc., provided day-to-day coordination in the conduct of field interviews, quantitative analysis of survey data, and major support for the preparation and duplication of the final report. Diane Lloyd, research librarian at Northwestern University, aided with development of essential background and bibliographic material for the report.

Finally, we are indebted to the Illinois Advisory Council on Adult, Vocational and Technical Education, whose financial support made this study possible. Special thanks are extended to William Nagel, Executive Director, for his encouragement and assistance throughout the project.

Chicago, Illinois
June, 1976

Frank H. Cassell, President

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# CHAPTER I. INTRODUCTION

"There are some potential problems underlying Illinois' shaky budget balance. The state's population and labor force have grown at a very slow pace over the past five years, both in absolute terms and in comparison with the rate of expansion for the period 1949-1969. Growth of personal income for state residents is below the national average. These factors and the lagging growth of non-agricultural employment result in large part from the decline of manufacturing in the national economy; Illinois, as a state with an older economic mix, is subject to difficulties like those of older cities despite the state's substantial agricultural base.

"More important, perhaps, than the current state of the economy is the issue of Illinois' attitude toward business. In the wake of a substantial increase in the cost to employers of state unemployment compensation payments, there has been some discussion over the business climate here in comparison with other states. Of course, the southern and southwestern states have garnered the lion's share of industrial growth, in part through low taxes and non-unionized labor, but it is said that Illinois is not even doing as well in attracting and retaining jobs as are some of its older industrial neighbors."
(First National Bank of Chicago, State of Illinois Research Report, April 12, 1976)

This study began with two objectives: (1) to design and conduct an appraisal of apprenticeship programs in Illinois, with special emphasis on the role of vocational education in the present system, and (2) to provide recommendations and alternatives for building a policy framework to guide vocational education involvement with apprenticeship programs in the future. These objectives require going beyond the traditional view of vocational education and apprenticeship as competing sources of training and access to employment in craft occupations and trades, for such a view operates to the disadvantage of both the people and institutions in each system. A fresh view of these two systems as complementary collaborators working for the mutual benefit of both is required in building a framework to guide vocational education's role in the apprenticeship programs of Illinois. This report, therefore, begins by suggesting such a framework

for collaboration, examination of its assumptions and limitations for each system, and implications for guiding the development of complementary roles for vocational education and apprenticeship in the state.

Four concepts underlie the design and methods used to conduct this study. The first is that trained and skilled manpower is a basic economic resource to the state and its regions. The skills and talents of a community help determine its capacity to attract and retain business and industry. Improved access to training and opportunities depends to a large extent on the ability of communities and regions throughout Illinois to develop and maintain a supply of skilled, qualified workers for jobs which provide stable economic and employment bases at the local level. The goal of this study is to suggest policies which contribute to a growing demand for skilled workers in the state; little can be gained through increased competition for jobs in a shrinking economy.

The second concept which underlies this study is that an educational system which provides quality training is required to provide a trained, skilled labor force for a state or region. Education and training then become economic resources through which the employment base of a region and state may be improved. Employers depend on a supply of people with basic learning skills (reading, writing, computation and communication), work habits and attitudes required for successful employment in disciplined work situations. In the words of one vocational educator in southwestern Illinois, "Industry cannot provide this training. Schools can, and we all know that we'd better."

The third concept upon which this study rests is that apprenticeship and vocational education are both part of our pluralistic education system. Each has a legitimate role in helping people prepare for work and life in the state. The need to provide a trained labor force is far too important for the contributions of either system to be reduced in competition between them; together the systems can contribute far more through collaboration than either can achieve alone.

The fourth concept which underlies this study is that crafts are "bottleneck" occupations -- that is, occupations without which employment and economic growth are hampered. In other words, industrial and business development is dependent on the availability of a "critical mass" of trained, qualified craftsmen. For example, many non-craft jobs in a machine shop cannot exist without the machinist occupation. Similarly, a broad range of employment opportunities in related occupations are dependent on the supply of trained, qualified craftspeople in manufacturing and construction occupations. Jobs such as manager, planner, designer, production controller, project coordinator, accountant, financial advisor and office occupations which involve scheduling and monitoring the work of craftsmen in the field are dependent upon the knowledge and supply of people in the crafts and trades.

## The Framework for the Study: The Labor Market

The next step in planning and conducting this study of vocational education's present and future role in Illinois apprenticeship programs is to recognize the operation of the social and economic system which determines people's access to training and jobs. The framework for analysis in this study is the labor market, or the marketplace where employers buy or employ labor and where people sell their time and talents. Five elements contribute to the paths people take in finding and succeeding in jobs. First is the supply of labor, or the number of people in the market who offer their time and talents for employment ranked by characteristics such as age, sex, race, skills, education and experience. The second element, the demand for labor, is the number of jobs in the economy of a region classified by occupation, industry, location and the conditions of various types of work. The third element is labor market intermediaries, or the adaptive and facilitating mechanisms which bring people and jobs together. The fourth element, labor market information, enables employers, intermediaries and people seeking training and jobs to make better informed decisions about the advantages and disadvantages of different jobs in the labor market. The final element, price, includes the wages and benefits of various jobs which attract or discourage people

from seeking work. These five elements are interdependent, each changing in response to the others as people and institutions attempt to bring the supply of labor and the demand for workers into equilibrium. The role of vocational education and apprenticeship in the labor market is similar to that of other intermediaries in the system -- to help information and access to employment flow more freely to enable people and employers to make mutually beneficial decisions about training, work, their lives and their places of work.

The design of this study is built on these concepts from the perspective of the labor market. This investigation focused most directly on the demand for people in the craft occupations and on the roles of apprenticeship and vocational education as labor market intermediaries helping people to qualify for, find, enter and succeed in jobs. Each of these factors reflects the view that trained, skilled manpower and the educational resources which prepare and maintain a supply of skilled workers in a region and a state are required to attract a growing employment base within which vocational education and apprenticeship can work together most effectively. These issues shape the organization of information presented in the next three chapters of this report. Chapter II examines how the apprenticeship system operates in Illinois and the nation. Chapter III explores major issues in apprenticeship. Chapter IV reviews past studies and literature, tracing the history of apprenticeship and vocational education, and the relationships between them. Each of these reviews is intended to provide a foundation for interpretation of the results of this study and the recommendations which emerge from it.

## Design of the Study

Four factors of this study help distinguish it from earlier attempts to explore the relationship between apprenticeship and vocational education. Other investigations have included some of these elements, but none was found which included all four. The first and most unique element is the attempt to place vocational education and apprenticeship into a framework for viewing them as complementary economic resources rather than as competing alternatives to training and

employment in the craft occupations. The second factor is the examination of craft occupations both inside and outside the construction trades; the high proportion of apprenticeship programs in construction trades has tended to lead many researchers to overlook other craft occupations and opportunities for training and employment. The third factor is inclusion of both joint and non-joint programs in the state. Joint programs are operated by employers and unions collaboratively, usually under the direction of a Joint Apprenticeship Committee (JAC); non-joint programs are directed by employers without the participation of a JAC or union. The fourth factor in the design of this study is the inclusion of both surveys and interviews with people involved in apprenticeship and vocational education in Illinois. Most studies are statistical analyses of survey data gathered from people in the apprenticeship system; a few studies rely primarily on interviews or case studies of programs in particular states. This study includes both statistical analyses of survey results from program sponsors and apprentices, and qualitative analysis of extensive interviews to examine how people in apprenticeship programs and vocational education view each of these systems in Illinois.

Detailed design of the study, therefore, emerged from recognition of the need to examine the institutions in each system and their impact on people involved with apprenticeship and vocational education in Illinois. Existing information available from the Bureau of Apprenticeship and Training (BAT) in the U.S. Department of Labor helped provide an introduction to that system and suggest strategies for conducting surveys and interviews in the state. Program sponsors identified in the BAT records were surveyed, and respondents assisted with identification of individuals willing to be interviewed throughout Illinois. Contacts through personal interviews also facilitated distribution of surveys to apprentices. Finally, interviews with representatives of educational and governmental agencies involved in apprenticeship and vocational education activities in the state were conducted with the assistance of trained interviewers throughout the state. Chapter V describes the methods and procedure of the study in greater detail.

## Constraints and Limitations of the Study

Before considering the findings of the study (reported in Chapter VI) and recommendations for future involvement of vocational education in the apprenticeship system in Illinois (Chapter VII), the limits and constraints of this investigation should be noted. Each of these is potentially a subject for further study, but they are noted here in recognition of the boundaries for use and interpretation of the findings and recommendations reported here.

The first limitation involves the need for information about non-registered apprenticeship and training programs operated by employers in Illinois. Little is known about their location -- a factor which prohibited inclusion of such data in this study without expensive canvassing of employers throughout the state. Even less is known about the types and quality of training received by people in apprenticeship programs which are not registered with the BAT. A full understanding of the supply of trained people in craft occupations, however, is impossible without such information.

The second limitation addresses the need for information about the views of completers and drop-outs from apprenticeship programs in Illinois. Attempts to gather this type of data would have doubled or tripled the cost of this study, so the sample was restricted to present participants in apprenticeship programs. Virtually nothing is known, however, about the attitudes and elements which contribute to success or failure of individuals to complete the programs, from their perspectives. Only through examination of these populations in future research can many of the questions of concern to vocational educators in Illinois be explored.

The third limitation is related to the second -- namely that little or no systematic evaluation of program quality in vocational education and apprenticeship exists. The best information available about either system at present is based on the views of people who operate and participate in each system. Self-ratings and

assessments do indicate the satisfaction of these people with the systems they have created, but they offer little insight into the quality of training and on-the-job experience as individuals move through these systems into careers in the craft occupations.

The fourth limitation evolves from earlier ones. Follow-up studies of apprentices and completers indicate that a substantial percentage of those trained through apprenticeship enjoy more steady employment and advancement to managerial and entrepreneurial positions than do others in the labor market, and that they advance more quickly and at an earlier age than do other journeymen. However, while there is an apparent connection between apprenticeship and later success, no system of evaluation of the outcomes of apprenticeship or vocational education training exists. It is not clear what other influences contribute to the success of the person, such as personality, goals, access to opportunities, family support or discouragement, chance and the like. Only through careful assessment of the long-term outcomes of various types of training can the relative contributions of apprenticeship and vocational education be assessed more accurately in terms of the success of the person on the job, at home and in the community in which he or she lives and works, after leaving school to remain in full-time employment.

## CHAPTER II. HOW THE APPRENTICESHIP SYSTEM WORKS

### Introduction

Apprenticeship is a formal system of training providing the setting in which about half of all journeymen-craftsmen* in the United States have learned their skills. Apprenticeship combines on-the-job training with classroom instruction intended to produce a "well-rounded" craftsman knowledgeable in all aspects of his trade. It is a voluntary system in most places,** dependent upon the willingness of an employer to incur the costs of training. Apprenticeship is a two- to five-year program, varying by craft, with wages increasing over the term of training as a proportion of the journeyman wage.

Historically, apprenticeship has been identified with the construction trades, as those trades typically have been the largest single category utilizing the apprenticeship system of training. However, other types of trades, particularly metalworking and printing, are represented in apprenticeship as well. Until the 1960's, participation in apprenticeship was dominated by white males. Since that time, participation by non-whites has increased moderately, and by females, slightly. An apprenticeable trade is a trade which is learned through experience and training on the job, supplemented by related technical instruction. Training includes manual, mechanical or technical skills and knowledge, and involves the development of skills broad enough to be applicable throughout an industry. (The National Apprentice Program, 1972, p. 7)

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*A "journeyman" is one who obtains a full union wage rate, or, in the case of a non-union firm, the full wage rate for the craft occupation prevailing in the firm or plant of the firm.

**Apprenticeship is mandatory by state law in Wisconsin, where anyone in an apprenticeable training program is legally an apprentice.

The following tables show registered apprentices in the nation and Illinois by trade, by race/ethnic group, by sex and by industry.

TABLE II-1

REGISTERED APPRENTICES BY TRADE, U.S., 1960 and 1974

| | 1960 | | 1974 | |
|---|---|---|---|---|
| Trade | Number of Apprentices | Percent | Number of Apprentices | Percent |
| Construction | 102,963 | 63.9 | 182,018 | 62.0 |
| Metalworking | 23,795 | 14.7 | 31,715 | 10.9 |
| Personal Service | (Not recorded as a separate category) | | 11,832 | 3.8 |
| Graphic Arts | 13,259 | 8.3 | 8,624 | 2.9 |
| Miscellaneous | 21,111 | 13.1 | 56,860 | 19.5 |
| TOTAL | 161,128 | 100.0 | 291,049 | 100.0 |

Sources: Manpower Report of the President, April 1975, pp.330-331. State and National Reporting System (SNAPS), U.S. Department of Labor Bulletin 76-53.

TABLE II-2

REGISTERED APPRENTICES BY TRADE, ILLINOIS 1974

| Trade | Number of Apprentices | Percent |
|---|---|---|
| Construction | 9,985 | 63.8 |
| Metalworking | 1,975 | 12.5 |
| Personal Service | 1,183 | 7.5 |
| Graphic Arts | 995 | 6.3 |
| Miscellaneous | 1,572 | 10.0 |
| TOTAL | 15,610 | 100.0 |

Source: State and National Reporting System (SNAPS), U.S. Department of Labor Bulletin 76-53.

TABLE II-3

REGISTERED APPRENTICES BY RACE/ETHNIC GROUP, AND BY SEX
U.S. AND ILLINOIS, 1974

| | U.S. | | Illinois | |
|---|---|---|---|---|
| Race/Ethnic Group | Number of Apprentices | Percent | Number of Apprentices | Percent |
| White | 243,026 | 83.5 | 13,199 | 84.7 |
| Black | 25,612 | 8.8 | 1,765 | 11.3 |
| Oriental | 8,732 | 0.3 | 44 | 0.3 |
| American Indian | 3,202 | 1.1 | 80 | 0.5 |
| Spanish American | 11,059 | 3.8 | 495 | 3.2 |
| Other | 7,360 | 2.5 | 27 | .1 |
| TOTAL | 291,049 | 100.0 | 15,610 | 100.0 |
| Sex | | | | |
| Male | 287,935 | 98.9 | 15,565 | 99.7 |
| Female | 3,114 | 1.1 | 45 | 0.3 |
| TOTAL | 291,049 | 100.0 | 15,610 | 100.0 |

Sources: State and National Reporting System (SNAPS), U.S. Department of Labor Bulletin 76-53. Equal Opportunity Employment Commission Report #13

TABLE II-4

REGISTERED APPRENTICES BY INDUSTRY, U.S., 1973

| Industry | Number of Apprentices | Percent |
|---|---|---|
| Manufacturing | 59,100 | 21.3 |
| Nonclassifiable establishments | 34,500 | 12.5 |
| Services | 22,000 | 7.9 |
| Construction | 136,600 | 49.2 |
| Public Administration | 6,400 | 2.3 |
| Other | 2,800 | 1.0 |
| Transportation, Communication, Electric, Gas and Sanitary Services | 7,600 | 2.7 |
| Retail Trade | 7,600 | 2.7 |
| Wholesale Trade | 1,000 | 0.4 |
| TOTAL | 277,600 | 100.0 |

Source: Worklife, Feb. 1976, p. 32.

Table II-1 shows that while the proportion of apprentices in the construction trades has remained about the same from 1960 to 1974, proportions have shifted among other trades. Apprenticeship in the graphic arts and metal-working trades has declined, while personal service (trades such as barbers, butchers, cooks, medical and dental technicians) and miscellaneous trades (air conditioning and refrigeration mechanics, draftsmen, millwrights, maintenance mechanics) have increased.

Tables II-1 and II-2 show that the U.S. and Illinois distributions of apprentices according to trade are similar, with the exception that personal service trades are substantially greater in Illinois than in the nation as a whole.

Table II-3 shows that the proportion of blacks and other minorities in Illinois roughly parallels the national proportions of those groups. While the proportion of women in apprenticeship in the U.S. is small, it is even smaller in Illinois.

Table II-4 shows that nationwide just under one-half of the apprentices are in the construction industries. There may be more outside construction than reported due to underreporting by small and non-union firms. Strauss contrasts the industries in which apprenticeship is most common with those in which it is relatively uncommon:

> "The occupations (in industries) in which apprenticeship is most common -- construction, printing, machinists, auto mechanics, and barbering -- are largely associated with strong unions, distinct crafts, small firms, high turnover of employees among firms, and consequently, the attachment of worker to the labor market as a whole rather than to a particular firm.... [In most manufacturing, however] the typical factory has a hierarchy of jobs at increasing levels of skill, which the employee can ascend step by step, learning each job in turn.... Through devices such as seniority, employees become attached strongly to the individual firm, and consequently, employers have less reason to fear that an employee, once trained, will leave." ("Apprenticeship: An Evaluation of the Need", 1965, pp. 329-330.)

Why is unionization significant? Strauss explains that unions have an interest in apprenticeship because "the union's ability to control its jurisdiction depends in part on the skill of its members: if the business agent is not able to send competent men to the employer, the employer may be tempted to work on a nonunion basis" ("Union Policies Toward the Admission of Apprentices," 1971, p. 84). As a result, apprenticeship has been an extension of collective bargaining. About 80% of all registered apprentices are in jointly sponsored union-employer programs. (Glover, "Apprenticeship in America: An Assessment," 1975, Report of the Sixth Meeting, Appendix E, p. 3)

To describe how apprenticeship works, it is useful to consider the system from two perspectives: that of an employer in an industry meeting Strauss' criteria, and that of a young person in the job market.

Employer Perspective

An employer with a need for skilled craftsmen has both incentives and disincentives for instituting an apprenticeship program. The major incentive is the prospect of a supply of trained workers for his operation. The major disincentive is cost: the cost of an apprentice's low productivity in the early years of training, the cost of journeymen's time to teach the on-the-job segment of training, and the cost of sending the apprentice to school.* Furthermore, if the employer does establish a program there is no guarantee that graduates will remain in the firm.**

Assume, however, that the employer has determined that the benefits outweigh the costs, and is willing to set up a program. He then has a choice of registration or non-registration. Registration involves meeting the minimum

*As will be discussed later, an employer who sends his apprentices to a public educational institution for related instruction classes receives a subsidy.

**Some employers may even choose to "save" training costs by luring journeymen away from firms which sponsor apprenticeship programs, with better wages, benefits and working conditions. This is often referred to as the "make" (train inside the firm) or "buy" (hire from outside the firm) decision.

requirements of the Bureau of Apprenticeship and Training (BAT) or a state apprenticeship council (SAC).* The BAT minimum requirements are as follows (National Apprentice Programs, 1972, pp. 3-4):

1. An outline of work processes in which the apprentice will receive supervised work experience and training on the job and the allocation of the approximate time to be spent in each major process or division of the trade.

2. Provision for organized related and supplemental instruction necessary to provide apprentices with knowledge in technical subjects related to the trade. This may include supervised correspondence or self-study courses, as approved by applicable law or by policy of the registration agency. A minimum of 144 hours each year of apprenticeship is recommended.

3. The periodic review and evaluation of the apprentice's progress, both in job performance and related instruction, and the maintenance of appropriate progress records.

4. A ratio of apprentices to journeymen consistent with proper supervision, training and continuity of employment.

5. Equal opportunity in recruitment, selection and all phases of employment and training in compliance with Title 29, CFR, part 30, and with State Equal Employment Opportunity plans filed and approved pursuant to this regulation. All programs must be conducted and operated in a nondiscriminatory manner in all aspects of apprenticeship without regard to race, religion, color, sex or national origin.

6. A term of apprenticeship consistent with training requirements as established by industry practice, but in no case less than 1 year or 2,000 hours.

7. A probationary period reasonable in relation to the apprenticeship term, with full credit for such time toward completion of apprenticeship.

8. Safety training for apprentices on the job and in related instruction.

*State councils exist in 29 states and 3 U.S. Territories. SACs must begin with BAT standards as the minimum requirements for registered programs, but they may then add to BAT requirements. Each of the 32 SACs has added unique requirements to the rules for registering and operating apprenticeship programs.

A registered program in a unionized firm is usually administered by a Joint Apprenticeship Committee (JAC) composed of representatives of labor and management. These committees can be organized on a geographical, firm or multi-firm basis. They involve joint decision making, a collective arrangement. Non-union programs (non-joint) are administered by employers. National joint committees develop national standards and policies to guide in the establishment and operation of programs at the local level. In large programs administered by a geographically based JAC, the employer is often assessed a few cents per hour of journeyman employment for an apprentice trust fund, the resources of which may be used to finance administration and related instruction.

The choice between registration and non-registration highlights the voluntary nature of the apprenticeship system. Estimates have been made that about one-half of the programs are unregistered. Registration means increased involvement with government, and many employers associate government, especially the Department of Labor, with unions. These employers want the freedom to deploy the work force without limitation, and freedom to determine wages and apprentice ratios. On the other hand, registration confers on sponsors several benefits, among which are: (1) permission to pay below prevailing journeyman rates on federal and federally assisted projects under the Davis-Bacon Act of 1931, (2) improved access to school system facilities and curriculum materials for use in the related training portion of the program, and (3) greater recognition for the program and consequent improved assurance to the apprentice of receiving meaningful training meeting minimum standards. (Glover, Industrial Relations Research Association Proceedings, 1974, p. 69)

The BAT was created by the National Apprenticeship Act of 1937, commonly known as the Fitzgerald Act. It is an agency within the Employment and Training Administration of the U.S. Department of Labor. Where state legislation meets the criteria established by BAT (see later section on State Apprenticeship Councils), the BAT will recognize SACs as the registration agency. A Federal Committee on Apprenticeship is appointed by the Secretary of Labor to act as an advisory group to the BAT.

from several sources: friends and relatives, school counselors, posted announcements in a union or employer office, and if he is a member of a minority group, an Apprentice Outreach Center. The individual may apply to the JAC, the employer, and in a few cases, to a vocational school. A written test and an interview are then required to qualify for placement on a waiting list. Each candidate on the list is accepted as apprentice positions open up. If the person is still interested in entering the program at the time a position becomes available, he or she may enroll in the program. Sometimes a full-time union pre-apprentice school designed to prepare the candidate is required for a few months, during which time the person earns no wages.

After completion of this phase of training, the apprentice is "indentured" to the apprenticeship program. The indenture provides some protection to the apprentice by assuring that the employer may not fire the apprentice without a hearing before the JAC and an appeal to the BAT or the SAC. While in the training program, the apprentice works full time at the agreed percentage of the journeyman wage and also attends school either in the evening or during the day. Length of training can be shortened by the JAC if the apprentice has had previous training or experience.

All of the procedures outlined above are subject to wide variations among states, locations within states, trades and programs. In BAT-administered states, except for minimum requirements listed above, the conduct of the programs is at the discretion of the JACs or employers. In SAC states, state regulations supercede BAT regulations, and the programs may or may not be more closely monitored than in non-SAC states.

Labor Market Implications of Apprenticeship

There is a widely held view that apprenticeship is used by labor unions to control the numbers of entrants into the labor market with the ultimate objective of restricting supply to maintain high wages. There are three phenomena that refute

this view. First of all, employers do not always hire up to the limit of the contractual ratio of apprentices to journeymen; second, the ratio is suspended when economic activity is at a high level, and third, individuals are permitted to attain journeyman status through routes other than apprenticeship such as on-the-job training in private industry or the military.

The view held by Strauss and others is that, given a wage level, apprenticeship is a system of training "key men," with others permitted or denied entry through the "back door" as demand for craftsmen changes with economic conditions. Demand is governed by the business cycle, short-term seasonal influences, regional business trends and long-term industry trends. The "back door" refers to direct admissions and temporary permits granted in times of high demand (Strauss, "Union Policies Toward the Admission of Apprentices," 1971, pp. 75-80).

The increasing trend of dispersion of populations away from central cities -- not mere suburbanization -- to the smaller towns and less populated counties may further influence both the routes taken to qualify for a craft and the quality of craft and apprentice training.

An interesting issue here is the process by which the ratio is determined by the JAC, and how closely these numbers reflect the need for a permanent work force. The evidence is that estimates of the number of apprentices that should be hired during a given year are based on guesses by unions and JACs -- "how many men were on the bench or the number of apprentices that were indentured last year may determine how many new apprentices should be indentured" (Olympus, A Pilot Study of the Apprenticeship System, 1975, p. 88). Strauss claims that union estimates tend to be slightly overconservative ("Union Policies Toward the Admission of Apprentices," 1971, p. 78).

Outlook for Crafts in Illinois

Although the figures in Occupational Manpower Projections, 1976-81* in Illinois present some problems of interpretation (see **Review of Literature, page** 50), the projections are the best available estimates of the demand for craftspeople during the next several years. They may be used to offer insight into future needs despite limitations in virtually any form of projections. Table II-5 presents summary data for projected demand under the heading "Craftsmen, Foremen and Kindred Workers" only, although some apprenticeable occupations are scattered among other headings, and not all occupations under this heading are apprenticeable. The summary data, however, are adequate to provide rough estimates of projected demand from 1976 through 1981 for each of the 20 manpower planning regions defined by the Governor's Office of Manpower and Human Development. "Manpower Planning Regions in Illinois" is a map showing the boundaries of the 20 regions. Unless there is a dramatic increase in the proportion of skilled craftsmen who attain journeyman status through apprenticeship, about half the individuals meeting the new demand will enter apprentice training programs, with the other half entering through the "back door."

The numbers in Table II-5 should be read with several key points in mind. The first is the source of baseline data from which projections were made. The Illinois Bureau of the Budget, assisted by the remaining three sponsors in the project, started with special Census tabulations for the state. Regional projections were derived from modifications of the Bureau of Labor Statistic's methodology, Tomorrow's Manpower Needs (BLS Bulletin 1606. Washington, D.C.: U.S. Government Printing Office, 1969). While the methodology appears appropriate for national and perhaps state-level macro projections, little is known about the validity of the model for sub-state regions.

*Published by the Illinois Office of Education's Department of Adult, Vocational and Technical Education in a project jointly sponsored by the Department and Governor's Office of Manpower and Human Development, the Illinois Bureau of the Budget, and the Illinois State Employment Service in three volumes early in 1976.

Another limitation of the projections is embedded in the economic activity assumptions which underlie the numbers. The assumptions parallel those of BLS in projecting national census-derived estimates by occupation and industry input-output matrices. They are summarized below.

> "The institutional framework of the American economy will not undergo radical change during the period 1979-2000.
>
> "The economic, social, technological and scientific trends will continue, including the relative values placed on work, education, income and leisure.
>
> "The national defense expenditures will remain relatively constant, with the Armed Forces manpower to be at a level of approximately 2 million persons. No armed conflicts involving active military commitments are projected.
>
> "National fiscal and monetary policy are assumed to achieve a satisfactory balance between unemployment and price stability, permitting the achievement of stable long term economic growth. The national unemployment rate is assumed to be 6.0% for the period 1980-1985.
>
> "Productivity in the private non-farm economy is assumed to grow at the long term rate of 2.7% per year. The current rate is assumed to reach the long term rate by 1980. The annual trend rate of 5.5% is assumed for the farm sectors.
>
> "The national energy supply-demand balance will approximate that projected by the U.S. Department of the Interior in 1972 (with the domestic production shortfall being made up from imports). Primary programs developed as part of 'Project Independence' are not considered likely in the short run, except insofar as bituminous coal mining and natural gas activity in Illinois are expected to increase with announced plans of the major firms now located within the state."
>
> (Occupational Manpower Projections Methodology, Vol. 2, pp. 49-50)

Finally, these data -- while the best available projections for employment by region within the state -- reflect replacement demand representing nearly 75% of the total projected new jobs in Illinois by 1980. These estimates do not appear to reflect the possibilities of changing demand by occupation through substantial growth or improvements in the employment base of the state.

TABLE II-5

TOTAL NEW DEMAND FOR CRAFTSMEN, FOREMEN, KINDRED, 1976-81, IN ILLINOIS, INCLUDING GROWTH AND REPLACEMENT

| Region | Expansion | Replacement | New Demand, 1976-81 |
|---|---|---|---|
| 1 | 1,734 | 3,769 | 5,503 |
| 2 | 22,675 | 48,398 | 71,073 |
| 3 | 626 | 1,207 | 1,833 |
| 4 | 548 | 1,623 | 2,171 |
| 5 | 583 | 932 | 1,515 |
| 6 | 1,461 | 2,619 | 4,080 |
| 7 | 583 | 852 | 1,435 |
| 8 | 1,742 | 2,511 | 4,253 |
| 9 | 134 | 609 | 743 |
| 10 | 625 | 1,134 | 1,759 |
| 11 | 584 | 1,648 | 2,232 |
| 12 | 68 | 582 | 650 |
| 13 | 2,097 | 3,486 | 5,583 |
| 14 | 256 | 598 | 854 |
| 15 | 62 | 402 | 464 |
| 16 | 54 | 289 | 343 |
| 17 | 1,037 | 1,153 | 2,190 |
| 18 | -99 | 205 | 106 |
| 19 | 221 | 229 | 450 |
| 20 | 124 | 522 | 646 |
| TOTAL | 35,115 | 72,768 | 107,883 |

Source: Occupational Manpower Projections, 1976-81, State of Illinois, Vol. 1, 1976.

## MANPOWER PLANNING REGIONS IN ILLINOIS

Source: Occupational Manpower Projections, Methodology, State of Illinois, Vol. 2, 1976, p. 46.

Vocational Education and Apprenticeship

Public vocational education at the secondary and post-secondary school levels has two basic roles in the apprenticeship system. First, vocational programs can be preparatory to apprenticeship through counseling, basic learning skills (reading, computation and communication), and introductory craft or industrial education. Second, vocational programs may conduct the related classroom instruction segment of apprenticeship programs. Historically, secondary schools in Illinois have been involved in both to whatever extent vocational education and apprenticeship have been related. The establishment of the Illinois community college system since the middle 1960's stimulated a surge of relationships between apprenticeship and vocational education in newly constructed two-year colleges, especially through related technical instruction provided in programs outside the major urban areas of the state.

Among the major incentives for relationships between community colleges rather than secondary schools is money. The reimbursement policy of the state significantly favors affiliation with community colleges. The Illinois Community College Board (ICCB) reimburses for students in credit courses according to a formula based on a fixed rate of up to $21.70 per semester hour. The Department of Adult, Vocational and Technical Education (DAVTE) in the Illinois Office of Education adds to that for occupational programs according to a similar formula allowing up to $7.50 per semester hour. By contrast, secondary schools are reimbursed by classroom contact hour for non-credit adult education programs on a formula basis with a maximum reimbursement per contact hour of instruction of 25 cents.

Funding levels for reimbursement of vocational programs are determined by priorities set within the Department in accordance with manpower needs as represented by the Illinois State Employment Service and Manpower Planning Regions of the Governor's Office of Manpower and Human Development, with exceptions for special skill shortages by occupation within individual secondary school or college districts. Four funding levels exist, each related to the projected demand for various occupations. The highest (A-level) includes occupations such as dental laboratory technology, inhalation therapy, business data processing systems, police science

technology and a number of cooperative education programs. Examples of B-level programs include ornamental horticulture, food management production and services, secretarial services, water and waste water technology and photoengraving. C-level funding is applied to areas of low demand and currently includes agriculture production, retail trade, general office clerk, scientific data processing, communications, electronics and dry cleaning. D-level programs receive no state reimbursement at all; current examples include logging, home furnishing, messenger and office services, seamanship and maritime maintenance.

The difference between funding reimbursement levels for secondary schools and community colleges in Illinois can be illustrated with an example. Assume that the combined reimbursement from the community college board and DAVTE for a local community college district is $20 per semester hour for a vocational course and that the amount for the secondary school is the maximum rate of 25 cents per hour of classroom teaching. Reimbursement to each institution for a class of ten students registered for the equivalent of three semester hours of credit in a community college would be determined in the following manner:

1. The community college would receive $20 times 3 semester hours times 10 students, or a total of $600 for the course.

2. The secondary school would receive 25 cents per hour times six hours of instruction (classroom contact hours) per week for 16 weeks times 10 students, or $240 for the same course.

Community colleges have also benefitted from legislation which provided that the state would pay up to 75% of the costs for construction and equipment of new local college facilities. Older facilities for secondary school programs received no such funding assistance. Some area vocational centers (AVCs) have benefitted from the creation of the Illinois Capital Development Board, but most secondary school vocational education facilities are older and have received less

state support than community colleges throughout Illinois. In some cases the opportunity to construct new facilities for community colleges also has led to duplication of facilities already adequate to serve the needs of the region because the existing facilities are in the older secondary schools.

Washburne Trade School in Chicago is an exception to the above distinctions between secondary and post-secondary schools involved in apprenticeship training. It is the only post-secondary school still officially part of the Chicago Public School system through a unique cooperative relationship among unions, management and education. Washburne was established in Chicago in 1919 as an "industrial continuation school" housed in an abandoned elementary school on the near south side of the city. The school soon became one of the largest veteran training centers in the nation under the initiative of federal programs rehabilitating World War I veterans. Apprentice training programs scattered among other schools were moved to Washburne over the years, including programs for carpentry, electrical work, pattern making, machine shop, steamfitting and sheet metal work. Others were soon established for painters and decorators, metal lathers, sign painters, pressmen, plasterers, plumbers, photoengravers, chefs, confectioners and linotype operators.

Washburne moved to the old quarters of Lane Technical High School in 1934, where it was expanded to include three major divisions: a trade school, a continuation school and a vocational high school. The demand for skilled workers pushed apprentice enrollment to 2,000 by 1940. Demands for military personnel caused enrollment to fall during World War II, but enrollment surged again in the late 1940's. The continuation division was separated and moved from Washburne in 1949 to make room for the expanding apprentice division. Although the vocational division remained in the same building with the apprentice group, it also was administered separately beginning in 1956. In 1958 the Washburne Trade School moved all trade training facilities to its present location at 31st Street and Kedzie in Chicago.

Construction trades, as with all formally organized apprenticeship programs, have tended to dominate training opportunities at Washburne. Building construction trades comprise more than 85% of the student enrollment, with the balance comprising about 400 apprentices from nine other trades or industries: machine shop, tool and die making, pattern making, foundry, die sinking, typesetting, linotype mechanics, meat cutting and sign painting. In addition, Washburne enrolls students who are not indentured apprentices in the following trades: auto mechanics and auto body repair, chef training and baking, basic electricity, basic machine shop and welding. Washburne also includes some retraining for journeymen as a supplement to experience through evening classes to review skills or learn new skills and knowledge. Each of these groups of students at Washburne is enrolled in response to the school's goal to provide for "the post-secondary educational needs of students employed in or preparing for occupations requiring vocational training" (Washburne Trade School - Chicago: A Self-Study Evaluation, Board of Education, City of Chicago, 1970-71, p. 15). Unlike the secondary schools and colleges discussed earlier, Washburne is financed by the Chicago Board of Education and the contributions of trust funds of Chicago Area JACs, with tuition charged to students who do not live in Chicago.

There is a subtle difference between Washburne's and the community college's enrollment policies. At Washburne, only union-affiliated apprentices are permitted to take related instruction in construction trades classes. Non-union individuals are allowed only in the non-construction open enrollment program. In community colleges, however, even in courses tailored for an apprentice program, anyone may take any class. Since the Illinois School Code states that all students may enroll in apprentice programs in trade schools, the DAVTE has refused to reimburse Washburne except for the open enrollment classes. The DAVTE rejected a proposal to have the Board of Education represented in the apprentice selection process as a solution to the impasse because the issue is not selection to apprentice programs but enrollment in related instruction classes.

There are vocational education/apprenticeship links in other states which do not exist in Illinois. In Michigan, for example, according to a cooperative arrangement worked out between the BAT and the Department of Education, vocational education is automatically notified of new apprentice programs and must approve the related instruction plan. It is not required, however, that related instruction take place in public educational institutions, but the public institutions must provide the related instruction if requested by program sponsors. The Department of Education is currently developing a model curriculum for tool-and-die-related instruction for use in community colleges.

In Wisconsin there is a separate vocational education board independent of the state board of education. The vocational education board operates post-secondary vocational-technical schools whose programs are similar to the occupational programs in Illinois community colleges. These institutions are mandated by state law to provide related instruction, but program sponsors are not compelled to use public institutions.

Illinois has made some progress toward consolidating the dual paths and administrative procedures for vocational education systems within the state in the past few years. Until recently, secondary school vocational education policy and reimbursements went through a separate Board of Vocational Education and Rehabilitation.

As of July 1975, secondary school vocational education programs have been moved into the Illinois Office of Education and expanded to include adult education programs. Similarly, the State Advisory Council on Vocational Education has enlarged its horizons to include adult and technical education. Unfortunately, the job is not yet complete, for coordination between secondary schools and community colleges is still restricted by the varying policies and rules of DAVTE and those of the ICCB and its parent board, the Illinois Board of Higher Education.

## CHAPTER III. ISSUES IN APPRENTICESHIP

There are several issues in apprenticeship, among which are the content, character and length of training, the treatment of women and minorities, state apprenticeship councils, the role of government agencies and public subsidies for apprentice training.

### Content, Character and Length of Training

It has been charged that long training is one of several means used by unions to control the supply of people entering the trades. Minorities in particular have maintained that the length of training acts as a deterrent to entry.

On the first point, it is argued that by keeping programs long, the number of entrants is kept low, thereby protecting wage levels. That the function of apprenticeship is not to control the number entering a trade has been discussed earlier; the corollary that length of training is used to control numbers is equally open to question:

> "The formalized system shows rather rigid apprenticeship requirements which have not changed very much through time, whereas in actuality there is considerable flexibility and diversity, with some apprentices, in fact, becoming journeymen before completing the formal apprenticeship period -- depending on such factors as the relevance of the standards and procedures to job requirements, labor market conditions, and the degree of control exercised over the program by unions and employers" (Levitan, Mangum and Marshall, Human Resources and Labor Markets, p. 179)

It is, in fact, impossible to separate length of training from other aspects of apprenticeship. Strauss observes that the shortening of training

> will increase the supply of those who will enter apprenticeship but reduce the demand for apprentices by employers. According to almost unanimous employer reports and two empirical studies, employers tend to lose money on apprentices during their first

> years of training when training costs are high and apprentice productivity is low; only during the last year or so does productivity exceed cost. Thus, the elimination of the last years of apprenticeship would make the program less attractive to employers. Myron Roomkin ... has pointed out that apprenticeship could be made more attractive to employers if the initial years of learning could be shortened (ILRR, October 1973, pp. 95-96).

On the second point (that the length of apprenticeship is a deterrent to minority participation, and by implication a device used to exclude unwanted individuals), it is difficult to agree with the conclusion reached by Maurizi that because there are more minorities in short programs than in long programs shortening long programs will increase the participation of minorities. There may be other factors at work besides the length of program, such as attitudes or earnings; the latter proposition was tested by Roomkin (Maurizi, ILRR, pp. 200-206; Roomkin, ILRR, pp. 696-705).

The point to be made here is that the length of training in principle is determined by skill demands. In practice, however, because of several factors including tradition, resistance to change, poor secondary preparation of entrants, mediocre apprenticeship instruction, and haphazard on-the-job training, some programs are longer than they would be if those conditions were changed.

Related technical instruction has some special problems of its own: class composition, instructors and course content. Very often because it is too costly to hold small classes specially tailored to apprentice needs, classes are composed of apprentices at a variety of stages of their training, apprentices of several trades are in one class, or apprentices are in classes with non-apprentices. In Illinois, the only place where instructors are required to be both journeymen and certified teachers is Washburne; there are no uniform qualifications elsewhere, so that competence in teaching ability is not assured. Finally, it is often charged that related technical instruction is not "related"; that is, it has little to do with the apprentices' on-the-job training and there is little understanding of or agreement about what the instruction should accomplish. Similarly,

on-the-job training is sometimes characterized by journeymen inadequately trained to instruct, lack of systemized teaching and indifference on the part of the employer.

Treatment of Minorities and Women

As was noted earlier, apprenticeship and hence the core of skilled tradespeople in apprenticeable trades has been dominated in the past by white males. This pattern is attributable to nepotistic union referral systems in which sons of members had priority for apprentice training. This access system has been challenged by minorities seeking entry, and although vestiges remain, it has largely been declared illegal by the courts. While blacks and other minorities are represented in the aggregate in apprenticeship in roughly the same proportion as they are in the U.S. population, their absence or near absence in some trades suggests that barriers still exist. The very small percentage of women in apprenticeship indicates that this type of training is still difficult for them to enter.

There are three types of barriers that exist for minorities and women: (1) discriminatory practices used to bar entry, (2) attitudes of the minorities and women themselves, and (3) attitudes of people who supply career information.

With regard to discriminatory practices, recall that the path to apprenticeship starts with the possession of minimum qualifications such as a high school diploma, proceeds to a written exam and then is completed with an oral interview. Minimum qualifications, and content of exams and interviews (except for the court-ordered standard of "objectivity"), are at the discretion of the JACs. It has been charged that the minimum qualifications are higher than the nature of the job dictates, that the written exam is culturally biased and may not test the aptitudes necessary for a given trade, and that the subjective interview process can be easily abused. None of these issues has been resolved to the satisfaction of all parties, and may never be resolved because of the voluntary nature of apprenticeship. Federal regulations

are only a partial remedy, for while they compel program sponsors to submit affirmative action plans, the penalty for non-compliance is de-registration, seldom a crippling blow to an apprentice program.

Since few women have participated in apprenticeship, it can only be surmised what obstacles would be put in their paths if large numbers were to apply. That few women have applied suggests the other set of barriers to apprenticeship blocking both women and minorities: the cultural barriers. These barriers have consisted mainly of lack of information about skilled trades as a career option by those responsible for supplying information -- schools, media, family -- and conditioning of women and minorities by the suppliers of information as to those groups' capabilities. It is evident that a large part of the job of overcoming the cultural barriers will lie with educational institutions which are suppliers of career information.

Role of the Employment Service and the BAT

The State Employment Service has two roles vis-a-vis program sponsors within the apprenticeship system: (1) to provide information to job seekers and refer them, if qualified, to employment, and (2) to conduct aptitude testing for program sponsors. As will be seen later, very few downstate programs mentioned in interviews that they had had referrals from the Employment Service. This is not surprising in view of the fact that the only Apprenticeship Information Center in Illinois is located in Chicago, and it is likely that downstate Employment Service personnel are ill-informed about apprentice programs in their areas.

While there is interaction between the Employment Service and educational agencies on the state level (Occupational Manpower Projections is a joint venture which included DAVTE and ES, for example), there seems to be little interaction on the local level. Few educators in local institutions mentioned an ongoing relationship with the Employment Service during interviews in this study.

With regard to the role of the BAT, Swerdloff raises several issues. To begin,

> "the emphasis in the apprenticeship system appears to be the development of standards and the training of increasing numbers of apprentices. Little emphasis seems to be placed on reviewing the quality of the existing programs. Few programs are deregistered for low quality training. It has been recommended that consideration should be given to making periodic quality review of programs a specific activity of the apprenticeship and training representatives."

Another issue is the BAT's role in affirmative action and equal opportunity in apprenticeship. In view of BAT's primary function as a promoter and consultant to training programs established voluntarily, it can be questioned whether that agency can function effectively as both "salesman and policeman." The final issue raised by Swerdloff is whether the BAT is doing an adequate job of public information in the areas of career opportunities in the skilled crafts, in enhancing the image of the blue collar worker, and in promoting the advantages of apprenticeship to employers (Swerdloff, preliminary draft for discussion, "Study of Operations of Federal Apprenticeship Programs," in Report of the Sixth Meeting of the Federal Committee on Apprenticeship, p. 6).

## Public Subsidies for Apprentice Training

It has been argued that since a trained individual benefits society as well as his employer, there should be public support for apprentice training programs in the form of tax credits or direct payments to employers. This public support, it is maintained, would render apprenticeship more attractive to employers than is currently the case, and therefore result in a larger supply of trained workers.

As was pointed out earlier, employers already receive subsidies in the form of tax-supported related instruction. Furthermore, like any business expense, employers' cash outlays for training costs are income-tax deductible, resulting in an indirect subsidy. However, since ratios are based on estimates

of future needs for "key men," it is questionable whether lowering the cost of apprenticeship would increase numbers employed. What lowering the cost might do is redistribute apprenticeship programs from large employers who can afford the costs to some relatively smaller employees who cannot afford programs under the present system.

If society does wish to subsidize, probably the most effective way to do this is through improved secondary preparation. This would accomplish the cost-lowering objective of shortening the initial years of apprenticeship; the purpose of this type of subsidy would be not to make apprenticeship more attractive to employers but to eliminate the waste of resources that attends poor education.

State Apprenticeship Councils (SACs)

Among the most serious issues in Illinois apprenticeship is the question of whether the state should join those which already have state apprenticeship councils (SACs) or remain one of the 21 which are monitored and directed by the rules of the Bureau of Apprenticeship and Training (BAT) in the U.S. Department of Labor. The Fitzgerald Act of 1937 acknowledged that some states then had SACs; 29 states and three territories now have SACs. The root of the question is that each SAC is free to add requirements and rules to the minimum standards set by BAT; all 32 SACs have rules which differ from those of the BAT. Apprenticeship programs in each of these states may be subject to both the rules of the BAT, where no SACs exist, and the additional requirments of SACs where they do exist. Multi-state programs, therefore, sometimes face the demands of several different sets of rules for a single program which may have been approved by the BAT already.

This issue is further stimulated by the rules which govern recognition of SACs. The National Apprenticeship Act in 1937 required that such councils be located in and recognized by the state department of labor; the last council formed illustrates the importance of this factor. Maryland originally organized its council in the department of education about 1960; it became the last council recognized a

few years later when it was moved into the state department of labor. Delaware presently has an unrecognized council because it remains in the state department of education. The most recent attempts to form councils ended about two years ago in Alabama and Missouri: both states declined to organize SACs.

Views on this issue differ as people express varying perspectives about the advantages and disadvantages of SACs where they exist. Those who favor SACs argue that state agencies are more able to promote apprenticeship programs than the BAT, and that appointment of an apprenticeship council usually is done by a governor, with the result that apprenticeship has more direct power in working out arrangements with vocational educators in the state. There is little evidence to "prove" claims that states with SACs have better apprenticeship programs than those which do not, but proponents of the concept tend to claim so anyway.

This issue of quality of apprenticeship programs rests on three criteria. First, strong sponsorship from labor or management can contribute significantly to the quality of a program. Second, the educational group providing the related technical instruction can improve program quality. Third, the SAC or BAT representative assisting the program may contribute, although even advocates of the SACs are reluctant to contend that the third factor can cause a poor or mediocre program to excel. They do concede, however, that improved leadership within labor, management or the provider of related technical instruction can contribute significantly to program quality.

An additional change in the rules governing SACs is under consideration in BAT. CFR 29 Part 29 - 29.12 would require that state agencies register only programs which conform to the standards set by the BAT. This would standardize the requirements from state to state for apprenticeship programs, with the result that the present opportunity for SACs to add requirements would end. (Report of the Seventh Meeting of the Federal Committee on Apprenticeship, October 1975, pp. 41-45). Some apprenticeship directors from non-SAC states

favor a regulation which strictly forbids that "additional requirements beyond those stipulated [by BAT] shall be imposed upon a sponsor or registrant [in an approved apprenticeship program]." Leaders of the National Association of State and Territorial Apprenticeship Directors (NASTAD) argue against such a ruling, however, claiming that regulations, licensing and local ordinances in most SAC states are set by legislation which would not be influenced or voided by actions of the BAT. (Report of the Eighth Meeting of the FCA, January 1976, pp. 41-44).

The question of a State Apprenticeship Council appears to reduce to one of cost, benefits and history. In states willing to justify the expense of a local agency rather than reliance on the BAT and the existing services of the state department of labor, SACs have been formed and tended to operate with little controversy. Program sponsors in states with long histories of apprenticeship without SACs, such as Illinois, tend to prefer the less constricting rules of the BAT over creation of a new bureaucratic organization to monitor their activities.

## CHAPTER IV. REVIEW OF LITERATURE

While the following section will not parallel the previous section precisely, it is intended that the review of literature be keyed to broad categories discussed earlier. The review will examine works on: (1) apprenticeship in general, its nature and place within the labor market structure, (2) training methods in general and related instruction in particular, (3) minorities and women in apprenticeship, (4) manpower forecasting, apprenticeship and vocational education, (5) government agencies and apprenticeship, (6) vocational education and apprenticeship, and (7) research methodology in apprenticeship.

### Apprenticeship in General

A comprehensive introduction to the subject of apprenticeship is contained in the chapter entitled "Apprenticeship and On-the-Job Training" in Sar A. Levitam, Garth L. Mangum and Ray Marshall, Human Resources and Labor Markets, 1972. The authors begin with the National Apprenticeship Act of 1937, before discussing the role of apprenticeship within the craft labor market structure, apprenticeship in training, minorities in apprenticeship, and some controversial issues in apprenticeship.

George Strauss has written widely on apprenticeship. Two of his works, "Apprenticeship: An Evaluation of the Need" (in Arthur M. Ross, ed., Employment Policy and the Labor Market, 1966) and "Union Policies Toward the Admission of Apprentices" (in Issues in Labor Policy, Stanley M. Jacks, ed., 1971) examine the role of apprenticeship and routes of entry to skilled crafts other than apprenticeship. Strauss also attempts to assess the adequacy of apprenticeship in providing a supply of skilled craftspeople. In "Union Policies," the author describes admission and selection policies and examines why apprenticeship continues to be an attractive alternative for acquiring craft skills. He argues that the aptitudes assessed by written tests are not necessarily valid predictors of success on the job, before concluding that union ratio rules do not "substantially restrict policy."

Ray Marshall, Robert W. Glover and William S. Franklin (Training and Entry into Union Construction, 1975) focus on the issue of entry into building trades unions. They examine procedures and standards which building trades unions use to admit craftspeople to journeyman status. They contrast those who enter the union without completing apprenticeship with those who are apprenticeship graduates, and how apprentice-trained individuals fare in the labor market in comparison with other journeymen. The study demonstrates that apprentice-trained journeymen are younger, better educated, more likely to have friends and relatives in the trade, and learned the trade faster than journeymen trained informally.

A recent study by Olympus Research Corp. (A Pilot Study of the Apprenticeship System, 1975, pp. 3-4) examined the feasibility of a national survey of apprenticeship practices with a case analysis of programs in California and Rhode Island. They relied on a case study form of analysis due to their small samples to note the following trends.

1. Apprentices enter training from school, the military and other jobs, but rarely from unemployment.

2. Completers were older at the time of entry, better educated, more likely to have fathers working in the trade, and had greater job security and income than people who failed to finish apprenticeship programs.

3. Completers were far more satisfied with their training than were those who failed to finish.

4. Two-thirds of the employers in the study considered apprentice-trained personnel to be better craftworkers than those without such background.

5. Related classroom instruction tended to be resented by those crafts which comprise manual tasks, but welcomed by those with substantial theoretical content. Investigators in the study suggested that this may be explained by the relative quality of instruction. Irrelevance or obsolescence of classroom content were the most frequent criticisms of those who resented related technical instruction in apprenticeship programs. The trend appeared to be away from the use of public schools and toward union-run classroom training in Rhode Island and California.

Training Methods

The two-volume study by Alfred Drew, Educational and Training Adjustments in Selected Apprenticeable Trades, 1969, was the basis of Manpower Research Monograph No. 20, Manpower Administration, Toward the Ideal Journeyman, 1970. The purpose of Drew's study was to develop a comprehensive model for training in the apprenticeable trades. Some of the components of the model are as follows (Vol. 1, pp. 19 and 20):

1. Program objectives are written, distributed and continuously evaluated.

2. Training objectives are based on the skills, knowledge and attitudes needed by journeymen in trade; results are measured against these benchmarks.

3. Recruitment and selection procedures are established on a sound legal base and are made known to the public.

4. Apprentices, journeymen, instructors and related personnel participate in executing a fully planned and developed curriculum.

5. On-the-job training is correlated with related instruction.

6. Schools and other sources of trainees are provided up-to-date information on training and career opportunities in the trade.

Using Drew's format, Arthur E. Oriel conducted a study, Development of Performance Based Individualized System for Technical and Apprenticeship Training, 1974. The objective of the study was to improve modern instructional technology to use individual differences in learning ability by allowing each trainee to pace him(her)self.

Progress through the curriculum would be based on demonstrated task achievement rather than on a specified number of hours. Oriel attempted to offer a viable alternative to apprentice-selection tests in current use, which

not only fail to accurately predict job performance, but, in addition, often serve to exclude many potentially competent recruits (Apprenticeship Training in the 1970's: Report of a Conference, Manpower Research Monograph No. 37, Manpower Administration, p. 24).

In Improving Apprenticeship: A Pilot Study of Employer and Union Reactions of Foreign Training Practices, 1973, Myron Roomkin reports on a study which tested the responses of a sample of employers and unions to, among other things, the modular or step-by-step type of training. Employers were more inclined to show interest in this type of training method than were unions.

In Innovations in Apprenticeship: The Feasibility of Establishing Demonstration Centers for Apprenticeship and Other Industrial Training, 1972, Gerald Somers recommends that the U.S. Department of Labor sponsor and develop one or more demonstration centers for apprenticeship and skill training in the United States. The projects should be as follows.

1. Union-employer-government financing and administration of related instruction and hands-on training for a particular trade or trades in a specific geographic area.

2. Programs for the acceleration of training of apprentices could be attempted on a pilot basis along the lines of those already approved or being considered by the BAT.

3. Federal subsidization to encourage more training for the upgrading and updating of journeymen skills.

4. Block release for related instruction in both a residential center and a nonresidential center located in an industrial area.

5. A residential center to provide related instruction for apprentices in remote areas where classroom facilities are not currently available.

6. Various experiments and pilot projects in the field of curriculum development for apprentices.

7. Projects to experiment with the composition of joint apprenticeship committees and the effects of union-management-federal financing on the attendance at JAC meetings and the effectiveness of JAC deliberations.

8. Experimental and pilot projects to meet "affirmative action" goals and other selection procedures to widen admission to apprenticeship programs.

Somers surveyed several groups of people regarding their reactions to the demonstration centers for apprenticeship and industrial training. The tension between vocational educators and apprenticeship coordinators reflects the differences documented throughout the literature and this research. Somers found vocational educators "enthusiastic about demonstration and pilot projects which would permit improved techniques for related classroom instruction in apprenticeship and skill training. They tended to be somewhat critical of the on-the-job portion of apprenticeship training, just as some union and management personnel were critical of the related instruction component." Educators especially liked the possibility of combining academic course work with apprenticeship credit in a demonstration center and the introduction of greater flexibility in the learning pace of instruction -- both concepts he found tended to be supported by employer and union representatives (pp. 50-53).

George Strauss critiques related instruction in "Apprentice-Related Instruction: Some Basic Issues" (in the Journal of Human Resources, Spring 1968). He examines aspects of related instruction such as composition of classes, instructor qualifications, curriculum, and relevance to apprenticeship. He concludes that "the quality of related instruction must be upgraded.... Greater emphasis [should be] given to homogeneous classes, pre-apprenticeship manipulative training, and 'final examinations.' As with vocational education generally, there is a need to 'chocolate-coat' theory so that it will be palatable to students who have a negative attitude toward formal education. Better facilities, better equipment, and better instructional salaries are needed almost everywhere" (p. 236).

Stephen Swanson, Morris Horowitz and Irwin Hernstadt in The Role of Related Instruction in Apprenticeship Training (1973) reported on their attempt to determine the effect of related instruction on job performance, and concluded that the effect is minimal. "A major sticking point in related instruction is that frequently it is expected to compensate for lacks in basic education (reading and math particularly) as well as orientation to the work world." The authors recommend that (from Report of a Conference, pp. 26-28):

1. Related instruction curriculums should vary, depending on the differing objectives of each apprenticeship program. To impose uniform requirements across all trades is seen as self-defeating.

2. Efforts should be made to develop objective tests, so that apprentices with previous training and/or work experience will not have to repeat what they already know.

3. Greater effort should be made by the public schools to encourage career decisions well in advance of separation from these institutions, so that students can be better prepared to enter the world of work.

4. More effort needs to be made by the public schools to insure that students have a firm grounding in reading, writing and math, all of which are basic to the craft trades.

One component of Gary B. Hansen's and Mark D. Randle's study entitled Drop-Outs and Completers in the Utah Apprenticeship System, 1969-74: Some Causes and Consequences, 1975, was a comparison of drop-outs and completers on their feelings toward related technical instruction. Both drop-outs and completers were asked to rank teachers' knowledge of the subject, teachers' interest in students, equipment in the school, relevance of classroom instruction to work on the job, teaching pace and overall quality of instruction. The researchers found no significant difference between drop-outs and completers in their feelings toward related instruction. "The data indicate that apprentices were less satisfied with the relevance of the classroom instruction than any other category. Further, ... apprentices were less satisfied with their related instruction than they were with their on-the-job training" (p. 109).

Hansen and Randle based their study on the framework developed by a student of Somers at the University of Wisconsin in Madison. Thomas A. Barocci examined the differences between apprenticeship program drop-outs and completers in The Drop-Out and the Wisconsin Apprenticeship Program: A Descriptive and Econometric Analysis in 1972. Both studies focused on attempting to discover weaknesses in the apprenticeship system as viewed by drop-outs. Barocci's major findings (Report of a Conference, pp. 42-43) can be summarized as follows:

1. Those most likely to complete apprenticeship training are white, male, married with dependents, and union members.

2. Half of those who dropped out of apprenticeship programs are working in the same field in which they received some training.

3. No substantive data are available on incomes of completers versus noncompleters, but overall the value of completing appears to be substantial.

4. Union membership affects earnings positively.

5. A high percentage of all respondents indicated that related instruction was not sufficiently related to tasks that had to be performed on the job.

Barocci interpreted these findings to make three major recommendations. First, he concluded that minority, female, and unmarried apprentices appear to need special counseling, at least during the first two years of training. Second, he found that a greater effort needs to be made to facilitate the transition from school to work. Beginning apprenticeship training during the high school years and integrating manual and liberal arts courses in post-secondary institutions are suggested methods of implementing this recommendation. Third, he urges that more flexibility be built into the apprenticeship system. No mechanism presently exists to permit adjustment for slow or fast learners. The greatest resistance to change comes from the unions, in his view, because of vested interests and tradition. He proposes that this issue be addressed quickly and directly through international unions and the AFL-CIO.

Hansen and Randle modeled their questionnaires and survey procedure after Barocci's methods in a study of similar issues for apprenticeship programs in Utah. Their major conclusions are reported below.

1. Completers and drop-outs differed significantly in their personal characteristics, i.e., age, number of dependents, marital status, etc., with completers being older and responsible for more dependents than drop-outs.

2. The completers in the sample indicated that they had received significantly and consistently better pre-apprenticeship advice and information.

3. The fact that an apprentice has attended vocational school prior to being indentured has no relationship to his likelihood of completing an indenture.

4. The drop-outs and completers were less satisfied with the related classroom instruction than with any other phase of their training.

5. The completers in the sample currently earn significantly larger incomes than the drop-outs.

6. The drop-outs in the sample who are currently employed in the trade in which they are indentured earn substantial incomes approaching those of the completers in the same trade, and a substantial proportion hold supervisory positions.

7. A close analysis of the reasons given by the drop-outs for their decision to terminate their indentures reveals apprentice-employer problems to be a prominent factor in the decision.

8. Many apprentices dropped out of the program not because of program weaknesses, but merely through normal attrition.

Minorities and Women in Apprenticeship

The classic work on minorities in apprenticeship is Ray Marshall and Vernon M. Briggs, Jr., The Negro and Apprenticeship, 1966. In this study, the authors attribute the absence of Negroes in apprenticeship to:

1. racial prejudice and discrimination by unions and management
2. nepotistic practices by unions
3. cultural attitudes that have relegated Negroes to low-status occupations
4. lack of qualifications and education.

They state that although "racial discrimination continues to be an important problem, [they] are convinced that its relative importance has declined in recent years and that measures to recruit, train and counsel qualified applicants currently are much more important." Their specific recommendations on Apprentice Information Centers and on the role of educators are useful (pp. 239-241):

"1. [See] to it that their advisory committees really represent the community groups they are intended to represent and [appoint] people who will take an active interest in the Centers.

"2. [Take] measures to gain the active support of local employment service and BAT officials (if this fails it might be desirable to remove the Centers from the direct control of local employment services and BAT representatives and to place them directly under the control of the BES and BAT national offices),

"3. [Make] it a violation of Title VII of the Civil Rights Act for apprenticeship sponsors to fail to supply the AICs with the necessary information for the Centers to operate properly (especially adequate advance notice of apprenticeship tests or other selections and information on the reasons for applicants' being rejected for apprenticeship programs).

"4. [Make] sure that the Centers' personnel actively disseminate information to schools and other community organizations and check the results of their recommendations to the JACs.

"5. [Give] some consideration to better national coordination of the work of the AICs. At present there seems to be [very little national coordination and the quality of the AICs is much too uneven].

"... [In] addition to improved academic course offerings, educators can enhance the Negro youngster's chances of getting into apprenticeship programs by providing better counseling, cooperating in the search for potential applicants, providing special remedial classes to help overcome educational deficiencies, and using their influence to ensure that discriminatory apprenticeship classes are not permitted to use public school facilities. Our evidence also suggests the need for adequate instruction in vocational schools to prevent these schools or programs from becoming (or continuing to be) dumping grounds for poor students."

Markley Roberts' study, Pre-Apprenticeship Training for Disadvantaged Youth: A Cost-Benefit Study of Training by Project Build in Washington, D.C. (1970), focuses on the benefits and costs of pre-apprenticeship training aimed at reducing the employment problems of many inner-city Negro youths. Comparison of the total benefits and costs to the individual and to society shows that the training program is a worthwhile investment which can help hard-core disadvantaged youth to enter apprenticeship programs.

Dennis A. Derryck evaluated the performance of Apprentice Outreach Programs in affecting retention rates of minorities in apprenticeship programs in his study entitled Improving the Retention Rate of Indentured Apprentices. The author cautions that his study should not be construed as an evaluation of Apprentice Outreach Programs; such an evaluation would also have to take into consideration individuals not placed. Some of Derryck's findings:

The most important contributing factors that affect apprenticeship status of minorities are focused around factors that are internal to the job. They take the form of customs and traditions of the industry or particular craft, discrimination, on-the-job problems and wages.

Derryck found that the economic well-being of an apprentice is controlled through customs and traditions in the industry or craft, and that the major factor in adaptation to these requirements is time. Minorities often were found to leave apprenticeship programs too soon to learn sufficiently the customs and traditions which control the economic benefits and assistance available to them at later stages in apprenticeship training (pp. 94-95). He urged adoption of a supportive model which

> assigns to the shop steward, business agent and job supervisor, the tasks of providing technical assistance and improved working conditions; to the apprentice coordinator the responsibility for job placement; and to the AOP the tasks of counseling and tutorial assistance for related instruction. However, several factors mitigate against the effectiveness of this model:
>
> a) Few apprentices, and even fewer minorities, receive any of these forms of assistance from the individuals who could provide them.
>
> b) There is a qualitative difference in the supports received by minorities from the shop stewards, business agents, job supervisors and JAC/JAC coordinators when compared to whites. While a few minorities do receive technical assistance on the job, assistance in job placement and assistance in improving working conditions, they are more likely to receive general guidance and pep talks to improve morale rather than specific remedies.
>
> c) Given both the nature and level of supports available to minorities from others, the supports offered by the AOP cannot be considered critical in improving the retention of minorities. (pp. 132-133)

Frank H. Cassell and Jean J. Baron present in the form of a case study a chronological, in-depth account of events and background of the efforts of blacks to gain entry into the building trades in Chicago. In the chapter, "The Black Coalition and the Chicago Construction Industry" in Collective Bargaining in the Public Sector (1975), the authors suggest that public policy which constricts demand for construction as a matter of practical effect frustrates institutional arrangements to increase minority participation in apprenticeship. This appears to be true of other "home-town" plans devised by civil rights groups, unions and employers.

A related group of articles in the Labor Relations Review provides insights into the question of research methodology and the use of statistics in regard to the issue of minorites in apprenticeship. Alex Maurizi in "Minority Membership in Apprenticeship Programs in the Construction Trades" in Labor Relations Review, January 1972, opened the debate by showing with regression analysis that there is a relationship between length of program and minority participation. He then calculated the elasticity of the relationship and drew the conclusion that if the programs were shortened, this would lead to greater minority participation. This claim precipitated responses by William S. Franklin and Myron Roomkin, with a counter-response by Maurizi in the October 1972 issue of the Journal; an additional response by George Strauss appeared in the October 1973 issue. Franklin, Roomkin and Strauss questioned Maurizi's assumptions and research methodology. Roomkin tested the proposition that earnings might be equally as important as length of program, and Strauss observed that third factors might be present, such as the historical participation of minorities in low-skill and hence relatively short programs.

As was observed earlier, the issue of women in apprenticeship has just begun to receive attention. Women in Apprenticeship -- Why Not? (1973), submitted to the Division of Apprenticeship and Training of the State of Wisconsin by Patricia Mapp, examines the realities and myths about women's capabilities to become skilled craft workers. The project resulted in several changes in Wisconsin, including (pp. 17-19):

1. Changing apprenticeship job titles in Wisconsin to eliminate sex designations and omitting sex references from promotional literature.

2. Including women in the affirmative action pledge and in the State Plan for Equal Employment Opportunity in Apprenticeship.

3. Instituting the Day Care Teacher and Homemaker Home Health Aide Apprenticeship programs, providing apprenticeship opportunities for over 100 women.

4. Creation of an apprenticeship liaison position in each Employment Service office in the state to bridge the apprenticeship information gap.

5. Producing a nationally distributed film, Never Underestimate the Power of a Woman, aimed at dispelling the myths of women in employment.

The report makes several recommendations. The author concluded that the U.S. Department of Labor should sponsor apprenticeship outreach programs for women designed to meet their pre-apprenticeship technical and application skill needs, and should amend regulations to include women in apprenticeship affirmative action plans. She also recommended that state education and employment agencies should make technical-industrial classes and apprenticeship occupational information available in the public schools with equal promotional efforts to boys and girls, and should eliminate sex designations from vocational guidance materials.

Role of Government Agencies

Researchers on this project were unable to find published materials on the Employment Service/apprenticeship link beyond studies of apprenticeship outreach centers cited in the literature review under the section on minorities and women in apprenticeship.

The role of the BAT has been researched by Sol Swerdloff. A draft for discussion, "Study of Operations of Federal Apprenticeship Programs," is included in the Report of the Sixth Meeting of the Federal Committee on Apprenticeship. Revelant aspects of this study have been discussed in this report in Chapter III, "Issues in Apprenticeship" (see page 33).

Manpower Forecasting, Vocational Education and Apprenticeship

The standard work on manpower forecasting is the U.S. Bureau of Labor Statistics Bulletin No. 1606, Tomorrow's Manpower Needs. Contained in these volumes is the methodology employed by the Bureau to estimate national manpower needs by occupation and industry.

The Occupational Outlook Handbook, an annual publication of the Bureau of Labor Statistics, contains occupational briefs, grouped into clusters of related jobs. For each occupation, the nature of the work, places of employment, training, other qualifications and advancement opportunities, the employment outlook, earnings and working conditions are described.

Occupational Manpower Projections, 1975-1981, State of Illinois, published by the Governor's Office of Manpower and Human Development, the Illinois Bureau of the Budget, the Department of Adult Vocational and Technical Education and the Illinois State Employment Service, applies the Tomorrow's Manpower Needs methodology to the State of Illinois, by state and by region.

There are two tables for each region and the entire state in Volume I of Occupational Manpower Projections -- one showing the total demand for each occupation by year, 1976-1981, the other the expansion and replacement components of the changes in demand. These tables include demand for apprentices. There is a problem in interpreting the figures on demand for apprentices; using the methodology employed for calculating the demand for occupations yields inaccurate data. Assume, for example, that an apprenticeship program is four years long. The number of apprentices that should be hired in 1976 is the change in demand in the year 1980, the number to be hired in 1977 is the change in demand in year 1981, and so on. In other words, the demand for apprentices in a given year is the change in demand for a skilled craft occupation in the future over the time between entrance into and completion of the apprenticeship. According to this logic, including the figures for apprentices in the totals double-counts the

demand for apprentices. However, since the figures for apprentices are small relative to the total demand for craftsmen, and since foretelling the future is an inexact science in any case, using the figures as given in the document will provide a reasonable estimate.

While there is little literature explicitly addressed to the vocational education/apprenticeship link, there is a large literature on vocational education planning for manpower needs. Apprenticeship for skilled crafts is, of course, a subset of the set of manpower demands, while the vocational education role in apprenticeship is a subset of the set of intermediary roles of vocational education. In an effort to be selective, two studies completed for vocational education in the State of Illinois are reviewed below.

Volume 3 of Occupational Manpower Projections is a revision of Western Illinois University's Center for Business and Economic Research Forecasting Manpower Needs, a Manual for Local Vocational Planning. The volume "is designed for use by the local vocational planner to estimate future job openings for vocationally trained persons and to estimate the program completions required to meet that demand." The methodology is, first, to identify the appropriate region in the state; second, to identify the vocational education program for which the planner seeks to project job opportunities; third, to determine the occupations which are relevant to the vocational education program; fourth, to determine the number of total job openings in these occupations that are likely to be filled by persons completing the relevant vocational education program; fifth, to determine the school's share of the job openings; and sixth, to determine the number of students that should complete a given vocational program in order to meet the projected occupational demand. Though useful, this methodology works from the supply side by searching out the demand for workers. A better method would be identification of demand by occupation to enable educational resources and people to plan in response to projected employment opportunities in each region of the state.

Vocational Education and Apprenticeship

Relatively little literature or research has attempted to explore the connections between vocational education and apprenticeship, despite the long histories of formal institutions for providing each. One of the sources of this lack of information is that vocationalism and apprenticeship in the United States have legislative and political histories which have tended to make them alternative routes for attainment of skills in the crafts and trades.*

Vocational education in the U.S. emerged from the demand for skilled workers in the 19th Century. Manual training, as it was known then, was viewed as part of the preparation of industrial leaders and professional engineers. Apprenticeship -- an outgrowth of apprenticeship in the guilds -- was an informal system of training, most commonly provided through the contacts of family and friends in the various crafts and trades. As industry progressed during the 1980's, support began to emerge for vocational training as an alternative to both apprenticeship and manual training. Schools proved more resistant to change than had been hoped by the early proponents of manual training. Expectations that "hand learning" would change teaching styles proved overzealous. Students were taught in the same basic manner, except that tools now joined the curriculum with books.

Vocational education drew much of its early support from business. The National Association of Manufacturers (NAM), founded in 1895, illustrated the early differences between labor and business in vocational education.

> "Formerly the apprenticeship system offered to the American boy the opportunity to learn a trade, but today the changing industrial conditions and the bitter and cruel opposition of organized labor as a whole have nearly destroyed this former safeguard of opportunity.... With the exception of the railway brotherhoods, organized labor as a whole is uncompromising in its opposition to the trade school, the apprenticeship system, and the open shop; they all involve restrictions on their attempted monopoly."
>
> (NAM, Proceedings of the Tenth Annual Convention [1905], pp. 142-145.)

*For a more detailed analysis, see Marvin Lazerson and W. Norton Grubb, eds., American Education and Vocationalism (New York: Teachers College Press, 1974).

The American Federation of Labor (AFL) was also critical of formal apprenticeship in its Report of Proceedings in 1915 (pp. 322-323):

> "Many apprenticeship programs have become too large to provide proper training. The progressive development of all industries requires skilled workmen possessing 'industrial intelligence' -- that is, comprehensive insight into and intelligent interest in their several trades, as well as skill. The present conditions of production are usually unfavorable to the training of such workmen in the shop or factory."

The AFL, despite its distrust of NAM and other major industrial leaders in the vocational education movement, joined them in concern about drop-outs from school between 14 and 16 years of age:

> "They change from one occupation to another, having no particular qualification for any vocation, and gain little in efficiency. Industrial education between the ages of fourteen and sixteen, when they are of little value in a business way ... would give them proper training to prepare them to enter some branch of trade or vocational work."
>
> (AFL, Report of Proceedings [1915], pp. 322-323.)

By 1914, the Commission on National Aid to Vocational Education was arguing that vocational training was essential "to prevent the waste of human labor, to increase the wage-earning power of our productive workers, to meet the increasing demand for trained workmen, and to offset the increased cost of living. Vocational education is therefore needed as a wise business investment for this nation because our national prosperity and happiness are at stake, and our position in the markets of the world cannot otherwise be maintained" (Sixty-third Congress, Second Session, U.S. House of Representatives, Document No. 1004 [1914], I, pp. 12-13).*

*This is an early statement of the economic role of education, especially vocational training, which is valid today.

This swell of support led in 1917 to approval of the founding piece of legislation undergirding the national system of vocational education. The Smith-Hughes Act granted $7 million in "seed money" to the states in perpetuity. Although the George-Reed (1929), George-Ellzey (1934), George-Dean (1936) and George-Barden (1946) Acts increased funding to $36 million per year by 1947, the Smith-Hughes Act of 1917 remained the major piece of policy legislation for vocational education until 1963.

Federal legislation mandated a definition of vocational education focused on specific training "narrowly related to the occupational skills it seeks to develop." This led to an increasing distinction between vocational and academic education, thereby strengthening and legitimizing the evolving dual system of education. Meanwhile, education was undergoing a significant transformation during the formative years of vocationalism in the U.S. as secondary schools became mass institutions. In 1890, less than four percent of the high school age population was enrolled in secondary schools; the proportion reached 28% in 1920 and 47% by 1930. Vocational education emerged as an appropriate type of training, in the view of many, for this surge of newcomers to secondary schooling. Business values and ethics further influenced education as administrators introduced administrative procedures and specialized departments. These events contributed to two primary impacts on vocational education on the larger educational system. The first was the conviction that the goal of such schooling was to prepare youth for specific roles in the labor market, and the second, through the growth of vocational guidance and educational testing, led to "more efficient" methods of selecting students for educational programs on the basis of their predicted future economic roles. The response of public education was to adapt the individual to the new industrial system to make him happy with his work and proud of his position in society.*

*Those in control of the system welcomed this view, while those who felt the system should adapt to the individual were opposed. John Dewey was among the early opponents as he expressed concerns repeated during the 1960's.

The tension between these goals and those of the labor unions was especially evident in Illinois, where under the sponsorship of the Chicago Association of Commerce, the city's former superintendent of schools, Edwin G. Cooley, drafted a bill in 1912 to divide the Illinois educational system into vocational and general schooling after grade six. The proposal reached the state legislature in 1913 with the support of most major business organizations in Illinois. Two basic issues common at the state and local levels throughout the nation highlighted the debate in Illinois. The first was the question of who would control vocational training, under what conditions, and toward what ends. The second regarded whether vocational education offered equality of educational opportunity or was a new way of discriminating against the working classes and their children. The Chicago Federation of Labor (CFL) then considered more radical than the American Federation of Labor, opposed the Cooley bill as an effort by large employers "to turn the public schools into an agency for providing them with an adequate supply of docile, well-trained and capable workers." The CFL argued that the bill would create a "caste system of education which would shunt the children of the laboring classes at an early age first into vocational education, and then into the factories." The Federation rallied its opposition in the face of widespread business and public support, including most of the city's teachers. Despite its powerful backers, the Cooley bill failed to pass and was no longer an issue by 1920. (George S. Counts, School and Society in Chicago [New York, 1928].)

This political and legislative background helps suggest some of the source of independence between apprenticeship and vocational education in Illinois and throughout most of the nation. The dominance of national organizations in the early history of vocational education meant that unorganized individuals had little to say about the structure of vocational education. Only a minority of workers were represented by unions as vocational education was shaped and focused through legislation and the coalition between business and education. Formal apprenticeship programs were begun with the National Apprenticeship (Fitzgerald) Act in 1937 as an alternative to a system by then narrowly focused on providing specific occupational skills, rather than the broad view of a "well-rounded craftsman" stated as the goal of apprenticeship.

Evaluations of vocational education have tended to affirm this distinction over time. John D. Russell and Associates prepared a study for the Advisory Committee on Education (Staff Study No. 8 [Washington, D.C., 1938] pp. 125-130) in which vocational education was criticized for being overly specific, a diversion of funds from general education and a source of encouragement for a dual system of schools. Perhaps the most important conclusions of Russell and his staff were:

1. Vocational education in the trades and industries has tended to produce a supply of labor without reference to demands for it or the possibility of absorbing it into employment.

2. There is a general opinion among the labor group that the classwork in vocational education has been persistently colored by an anti-union habit of thought.

3. A sound program of vocational education must include not only training, but also guidance and placement.

A new national commission appointed by President Kennedy in 1961 repeated many of the criticisms of vocational education which had appeared in the Russell report in 1938. The two most persistent problems appeared to be that vocational programs were insensitive to changes in the labor market, and to the needs of large segments of the population. The recommendations of the 1961 commission led to the Vocational Education Act of 1963, which significantly broadened the definition of vocational education by funding a wider range of innovations in program development.

The most recent national assessment of vocational education was published as a monograph, The Bridge Between Man and His Work, by the National Advisory Council on Vocational Education in 1968. The NACVE, which was created in the 1963 Act, concluded that "employability skills are essential to education" since a majority of the population will work. Vocational education was viewed as a basic objective of all education, despite recognition of the problems implicit in conflicting values of academic and vocational education.

> "Education has fostered, stressed and rewarded the verbal skills, but given too little attention to development of attitudes, manipulative skills and adaptability to new situations. In the process of emphasizing verbal skills, the predominant methods of instruction are lecture and discussion, with little attention given to the alternative technique of learning by doing.... This may be most applicable to those from deprived environments whose verbal experiences have been limited and whose time horizons have been shortened by expectation of failure."

The result of this historical development is that vocational education research tends to focus on secondary school and post-secondary training in which educators retain control over course content. Educators sometimes seem unwilling to share control of course content and planning of programs with those outside the school. This is in sharp contrast to the voluntary nature of apprenticeship programs in which related technical instruction may be designed through mutual agreement of a union and management in a Joint Apprenticeship Committee. The autocratic framework of educational administrators as "experts" on occupational training differs from the employer-union perspective of collaborative planning and training in apprenticeship programs. In addition, the concept of relating instruction to on-the-job work experiences is unfamiliar to most educators.

How has this situation of management-labor collaboration and educators' isolation from both emerged, and what can be done about it? Perhaps one reason for the difference is that labor and management had to learn to live with each other to survive. The creation of the formal apprenticeship system as a form of post-secondary education to train "well-rounded" craftspeople left educators with two primary roles. First, they could prepare youth for apprenticeship training at the secondary level, and second, they could assist labor and management by providing related classroom instruction for apprentices.

Two few educators valued collaborative relationships with labor or management to include them in their planning. The values of many communities and their schools emphasized preparation of youth for college; vocational education, therefore, tended to become a "last chance" for youth to complete secondary school

after they had demonstrated a low probability of success in the more highly regarded college-bound track. Educators as a whole tended to ignore the needs and conditions of the labor market, and vocational educators who still retained such contacts were held in relatively low esteem due to administrative and cultural values which preferred to send every high school student on to college. Gradually educators, even in vocational programs, tended to become even more isolated from the needs and conditions attendant to success in various careers. In short, they knew neither employers nor labor representatives in sufficient numbers for close links between vocational education and apprenticeship to develop on a large scale.

Two recent studies of Illinois vocational education will serve to illustrate the present situation. Eastern Illinois University surveyed more than 2,500 occupational education program graduates from the Class of 1971 in Illinois (If I Tell You, Will You Listen?, Charleston, Ill., 1973). More than one-third of the students surveyed entered high school vocational education training because they were interesting in learning about jobs in that field. This should not be assumed to mean, however, that they were sufficiently well informed about working conditions and job opportunities in those careers to know their specific occupational goals at the time they enrolled in such courses. Limited course offerings in many schools also set artificial constraints, further reducing chances that a high proportion of vocational education students will later enter jobs directly related to their training.

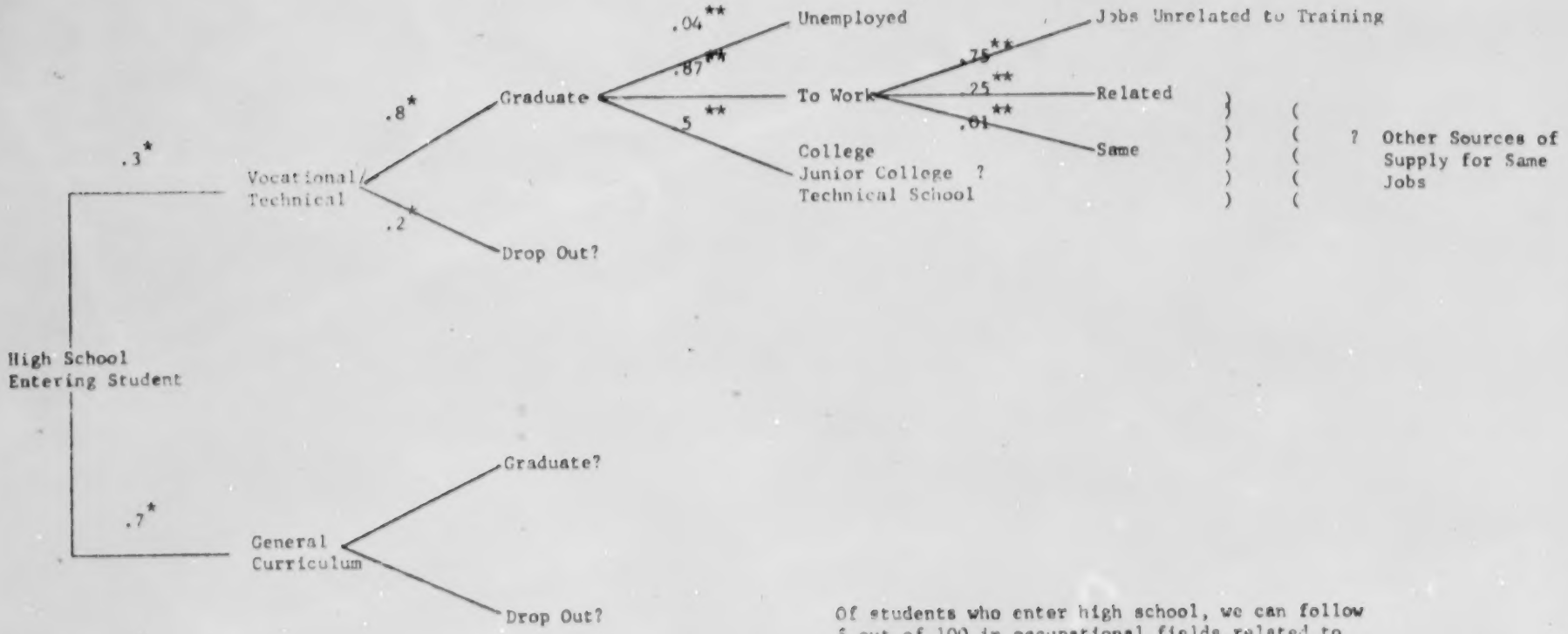
Perhaps this is still more clearly represented by the fact that nearly two-thirds of the survey respondents did not include job entry as a reason for enrolling in vocational education programs. One-third said that they enrolled "for personal reasons" while just 10% said that their occupational training was related to future educational plans. It should come as no surprise, then, that just 0.3% relied on the advice of employers in considering vocational education courses.

This should not lead to expectations that vocational education is a direct line to future employment. Further analysis of the Eastern Illinois University survey presented on the following page confirms this through path analysis of occupational education graduates. Only one percent of the graduates surveyed were employed in the same occupational area they had trained for in high school. Another 27% were employed in jobs related to their training, and nearly 75% worked in jobs unrelated to their vocational education courses in high school. Similar results were reported in a study of Wisconsin graduates of occupational education programs (Gerald G. Somers, The Effectiveness of Vocational and Technical Programs: A National Follow-Up Study, Madison, Wisconsin, 1971). Three years after graduation, only 25% of the graduates were employed in the field in which they studied in high school, although a larger number of post-secondary and community college program graduates were employed in their fields of study. Many of this later group, however, also moved to different occupational areas after initial experience in these fields.

None of these studies should be cause for alarm. We have long known that youth require a period of job-hopping, or intensive job search and information gathering, before settling down into long-term employment. The process of work establishment (Marcia Freedman, The Process of Work Establishment, New York: Teachers College Press, 1969), is beginning earlier for youth who work during schooling rather than only after it. Rodgers (Ronald C. Rodgers, Early Work Experience as a Mediating Variable in Occupational Choice, Dissertation, Northwestern University, 1975, p. 83) found that more than 90% of the students in a middle-class suburban community had worked -- and more than 70% of them in two or more jobs -- by the beginning of their senior year in high school. Thus, intensive job exploration of the conditions and opportunities for employment in various types of careers is beginning during high school, rather than after it.

The final study to be reviewed here was recently completed in Northwestern University's Graduate School of Management and School of Education. The final report of the Vocational Education Planning Project, Educational Planning in the Labor Market (2 volumes, 1976), examines the relationship between

Paths of Student Choice, Showing Decision Points and Information Gaps




Of students who enter high school, we can follow 5 out of 100 in occupational fields related to their training; we can place 2 out of 1,000 in the same specific occupation they trained for.

* Approximate figure

** From Eastern Illinois University survey, re. Illinois high school class of 1971

vocational education in 15 southwestern Illinois counties and the labor markets and employment opportunities of that region. The study found that few vocational educators view their programs as an economic resource for the development of trained workers in their communities. During the first year of the Northwestern study vocational educators indicated little knowledge of job opportunities in the region, little contact with employers, and little understanding of the importance of knowing either of these sets of facts. Both their knowledge about various jobs and the knowledge of acquaintance* of the conditions attendant to success on those jobs was restricted by this lack of information and understanding. Yet vocational educators must recognize these as important factors if they are to prepare timely, meaningful responses to the needs of employers and unions in apprenticeship programs.

The Northwestern study documents two major steps taken by vocational educators in southwestern Illinois which offer promise for such a relationship. First, the formation of the Southwestern Illinois Vocational Education Consortium has led to communication among educators which did not exist prior to the study; educators typically plan and operate programs with little information about or concern for those of neighboring secondary schools or community colleges. The consortium has facilitated communication and understanding of the need for educators to keep each other informed about programs and activities in the region.

The second major step involved a survey of employers in the 15-county region in the spring of 1976. More than 600 employers responded; each employer in the sample described present and future employment, in addition to describing entry-level qualifications by education and work experience within their firms by industry. This has led members of the consortium to begin the process of adding employers and labor representatives to the group to assist them in understanding the employment opportunities and conditions for success in jobs within the region.

*This concept was first applied to knowledge of work requirements by Elton Mayo in The Social Problems of an Industrial Civilization (Boston: Harvard University, 1945), p. 16.

## Research Methodology in Apprenticeship

Although almost all studies reviewed here had serious problems in obtaining valid samples, only the responses to the Maurizi article and the Olympus Research Corporation's A Pilot Study of the Apprenticeship System and Precis addressed themselves to methodological issues. The responses to the Maurizi article have been discussed earlier in this chapter. The purpose of the Olympus study was to "test the feasibility of conducting a national study on apprenticeship in the U.S." Among the conclusions are:

-- No study of jointly supervised labor-management apprenticeship programs is likely to be successful without the active participation, not just the endorsement, of national union representatives.

-- When national demographic information on active apprentices is collected, questionnaires that are mailed to respondents would be a useful tool. However, the questionnaires would be less useful in obtaining information on drop-outs and completers because of the time-consuming problems involved in obtaining their names and addresses.

-- To obtain attitudinal information from apprentices and other participants, personal interviews should be administered to a subsample of the universe. The study demonstrated that the questionnaire-by-mail technique does not lend itself to extracting attitudinal information.

-- Only states which have apprenticeship management information systems (i.e., numbers of apprentices, completers, drop-outs, and a central listing of active apprentices by program) should be included in a national study. Such information is essential if comparisons are to be made.

**Research Voids**

In addition tc several areas mentioned elsewhere in the report on which there has been little research conducted, there are three other areas. These are:

1. The roles and effectiveness of State Apprenticeship Councils.
2. The process by which JACs determine apprentice/journeyman ratios.
3. The qualitative and quantitative differences between joint and non-joint programs.

# CHAPTER V. METHODOLOGY

The initial task of this study was to consult with and collect data from several sources, including BAT staff, the DAVTE, union and labor leaders, and employers' associations. The purpose of the consultations was "to gain insights concerning their role in apprenticeship programs, as well as using their existing files as a data source for obtaining information." Data collection progressed in several phases: a search through BAT program files, a survey of program sponsors, personal interviews with program sponsors and others who were directly or indirectly involved with apprenticeship, and a survey of apprentices.

There were two areas in which information was not available. The project was unable to obtain data on nonregistered apprentice programs since short of canvassing the entire state, there was no way to learn where such programs exist. In addition, it was not possible to obtain names and addresses of graduates and drop-outs from program sponsors because complete records are not maintained; consequently those individuals were not surveyed.

## Developing Cooperation

Obtaining the information required extensive cooperation from influential people in unions and apprenticeship sponsors who were often suspicious of the purposes of the study and who were concerned that the results might be misunderstood or misused. The first major task undertaken by Project Director Orvis Wertz, a retired BAT Region 5 Associate Assistant Regional Director, was to explain the project to key people and solicit their cooperation. This required constant effort over several weeks and included out-of-town visits and active participation at the Illinois State Apprenticeship Conference meetings in Peoria at which he was able to confer with many key people in unions and management.

Gathering BAT Data

The next task undertaken was the collection of data from BAT files in the Illinois offices in Berkeley, Des Plaines, Peoria, Springfield, Rock Island, Rockford, Wood River and Lansing. The records needed were the program files on all individual BAT programs. Since the directors of each office had no authority to release this information, arrangements were made with the state director in Berkeley to inform the individual offices that the project staff had permission to use the records and that a research team could be expected. Of course, there were a few slip-ups in communication and in one case the research team had to make an extra trip because the person in charge had not received clearance to release the information. But once those matters were straightened out, the offices gave full cooperation and were very helpful in making available the proper files. Locating all the program files, however, was not always easy. The reopening of one office which involved the redistribution and transfer of files and the resignation of one Apprenticeship and Training Representative (ATR) resulted in shifting records to different offices; locating a specific apprenticeship program sometimes meant tracking it down.

The basic data on the specific programs was obtained from the form provided through the State and National Apprenticeship System (SNAPS). As far as available, information covering type of program, numbers of apprentices, drop-outs, admissions, race and sex, veteran status and sponsorship was recorded on a code sheet in a form ready for computer tabulation and analysis.*

The SNAPS data for 1975 was available at the state office. The 1973 and 1974 data was located at the various field offices, but much of this information was missing. One of the main complications regarding this earlier data was that in 1973 the central data base was being established; BAT experienced delays

*See Exhibit A-1 in Appendix; note that not all the information specified on the data collection form was available from the program files.

and errors commonly associated with the set-up of a new computer system. In addition, there was the housekeeping process of clearing out old files (which seemed appropriate since the data was now centrally stored) and, in one case, an office which moved and had eliminated dead files. After all the available SNAPS data had been collected, it was decided that only the 1975 information was sufficiently complete and adequate to be included in the present analysis, and no comparison with earlier years would be valid. Use of the SNAPS central files for obtaining this data was not possible because the system is not programmed to supply apprenticeship information in the categories of interest in this study.

The physical task of extracting information from the SNAPS and program files was also aggravated by the fact there is no standard filing system for apprenticeship program offices. Each Apprenticeship Training Representative (ATR) had his or her own system, and while many seemed efficient, the study team was continually faced with different filing systems and, consequently, heavy reliance on the ATRs for easy access to the system. And as invariably happens, not all the ATRs were available because of work schedules, illnesses, vacation or recent separation from the BAT. The essence of the problem for the research team was that the BAT files are designed to serve the needs of the ATRs, not for the convenience of data collectors in studies such as this.

An additional piece of information which was to be obtained from the BAT files was the name of the individual program sponsors or contacts who later would be sent questionnaires. Some of the ATRs had index files of all their programs with the names and addresses of the current contacts; those who did not maintain separate name files had contacts listed in the individual program files. In some cases the contact was easily identifiable; in others, finding the contact required going through each file page by page, looking for an appropriate name and address on the most recent correspondence. The process was time-consuming for the data collectors, and often was aided by the ATRs who worked for hours with the project staff personally going through the files and extracting the needed information.

Mail Survey of Program Sponsors

All program sponsors in Illinois identified in the BAT files were mailed questionnaires. Of the 1,450 mailed, 157 were returned, including eight too late to be processed. Of the 157 returned questionnaires, a number were from inactive programs for which most of the questions had not been answered. It is suspected that many sponsors of programs which are currently inactive probably did not bother to respond at all. Also, many of the questionnaires came back undeliverable because the addressee could not be located.

Another factor reducing the number of returned questionnaires was the suspicion that the project was a front for advocates of establishment of a state apprenticeship council, and a general mistrust of vocational education. It was only through the personal efforts of the project director that many of the sponsors agreed to cooperate.

The questionnaire, which was largely structured, asked for extensive information concerning the status and characteristics of the program, sources and characteristics of related instruction, and problem areas. As a result of consultations with labor leaders and employers' association officials, it was decided to omit questions on the program sponsor questionnaire pertaining to current apprentices' names, addresses, sex, race and veteran status because of the extensive time required of sponsors to assemble and provide that data. However, questions concerning the educational level and age of current apprentices had been retained, and it appears that many sponsors of large programs did not return the questionnaires because of the time-consuming nature of these questions. As a result, training programs with large numbers of apprentices are underrepresented. With the exception of this underrepresentation of large programs, most occupations apprenticeable in Illinois are represented in the returned program sponsors' questionnaires.*

*For a summary description of respondents and a copy of the Apprentice Program Sponsor Questionnaire, see Table A-4 and Exhibit A-2 respectively in the Appendix.

Personal Interviews with Sponsors and Others

Another task was to conduct open-ended personal interviews with apprentice coordinators, JAC members, employers, government officials, educators, community organization members, professional organization members, and student organization members. These interviews were conducted across the state. Apprentice coordinators, JAC members and employers included those who had returned the program sponsor questionnaire, plus sponsors of large programs who were requested individually by the project director to grant interviews. Completed interviews numbered 124.

COMPLETED INTERVIEWS

| | |
|---|---|
| Direct participants | |
| Apprentice Coordinators | 22 |
| Apprentice Coordinator/JAC member | 4 |
| JAC member (Labor) | 12 |
| JAC member (Management) | 2 |
| JAC member/Employer | 4 |
| Employer | 11 |
| Educators | 41 |
| Others | |
| Government official (including BAT personnel) | 12 |
| Community organization member | 8 |
| Professional organization member | 9 |
| Student organization member | 2 |
| | 124 |

The interviews were conducted by project staff members and professional interviewers specially briefed on the information which was asked for in the interview guide (see Exhibit A-3). The interviews were open-ended; that is, a question is asked which requires a lengthy answer or explanation which the interviewer records. This type of interview was used instead of a simple question and answer or Gallup poll type because it allows the respondent to express his or her ideas, reasoning and feelings in a conversational way. Experience has shown

that this method gives better insight into how people actually think than do the constricted questions with simple choices. The following is an example taken from an interview with a BAT respondent in this study:

Interviewer: Are young people who are interested in careers in the skilled crafts adequately prepared or qualified? In what areas do they tend to be weak and what might be done to strengthen the problem areas? What improvements might be made in preparatory schooling, especially in the vocational education area?

Respondent: Unfortunately, some who express an interest in apprenticeship give evidence of a lack of the basic communication skills and math skills which would enable them to qualify for these opportunities. The most important improvement could be made in the basic curriculum of the schools -- special preparation in vocational education is not required.

Since these interviews were with persons all over the state, they required considerable time and expense. As can be expected, there are often unforeseen problems which increase time and effort. For example, an interviewer called and set up an appointment at a plant, then drove 50 miles to keep the appointment only to find that the interview had to be rescheduled for the next day. In other cases, the project director had to spend hours on the phone to reach key people to persuade them to agree to an interview. All these are the normal problems to be expected in this type of research.

The Apprentice Questionnaires

Since it was not possible to obtain names and addresses of apprentices through program sponsors or the BAT files, an alternative strategy to a direct-mail survey had to be used. After consulting with labor leaders, sponsors and others, it was decided to ask program sponsors to distribute questionnaires to apprentices in their programs and urge them to fill them out and mail forms directly

to Frank H. Cassell and Associates. This request was made of all sponsors who were interviewed. A supply of questionnaires and return envelopes was left with those who agreed to distribute them.

To encourage cooperation, the questionnaires were anonymous, with prepaid return envelopes provided for returning completed surveys. However, because of this anonymity, there could be no follow-up or personal interviews with apprentices. This approach resulted in the return of 273 usable questionnaires. This is a good return in view of the method of distribution through the program sponsors. Project staff estimated that these questionnaires represent about 50% of those actually distributed to apprentices, although an exact count of forms distributed by cooperating program sponsors was not possible (see Exhibit A-4 in Appendix for Apprentice Questionnaire).

Comparing the characteristics of the sample with the characteristics of all Illinois apprentices, it will be observed that:

-- the racial and sexual distribution of the sample is similar to the statewide composition

-- the distribution of sampled apprentices by craft, and by race in each craft, is different from the statewide distribution

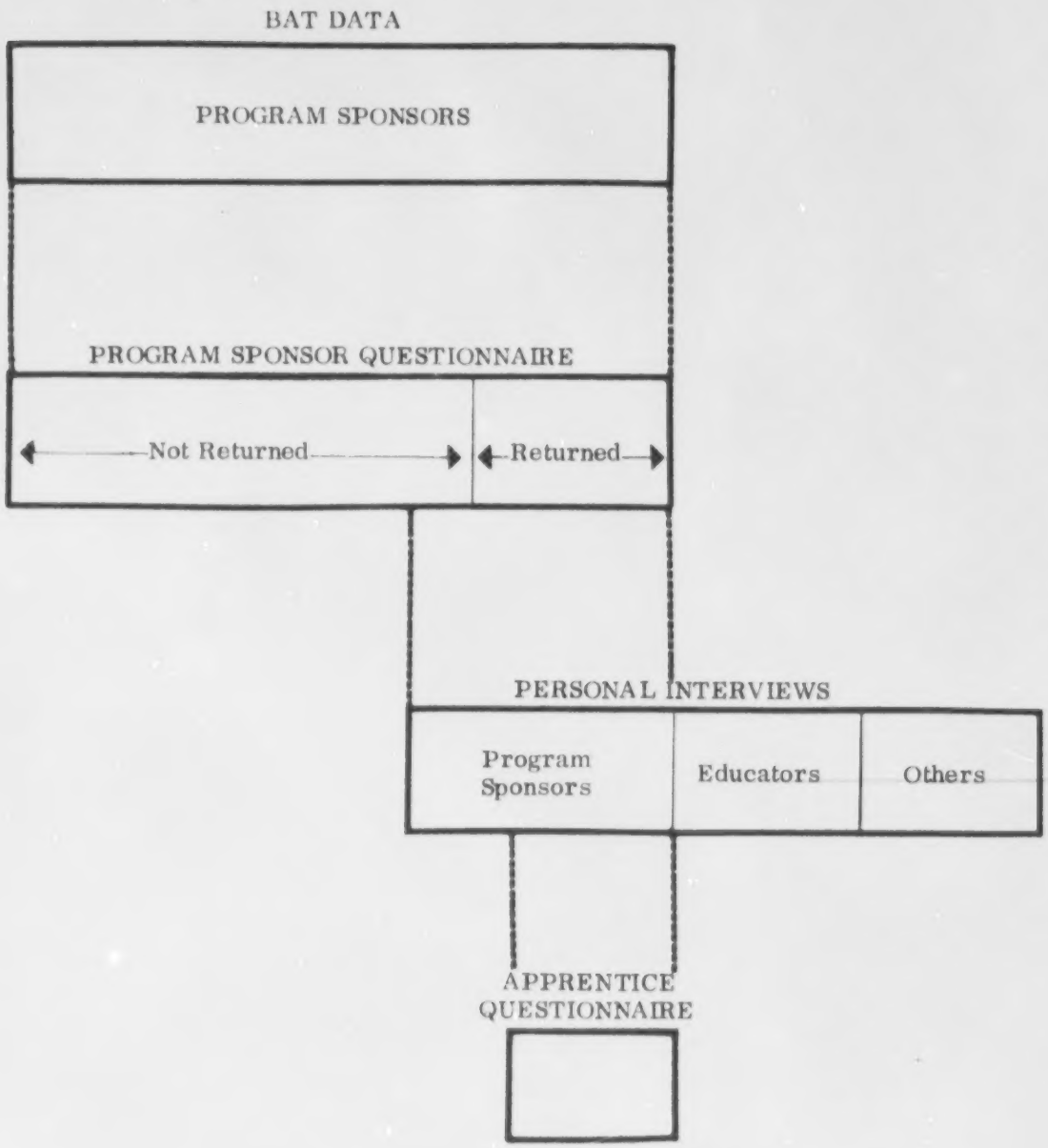
-- downstate in general, and Wood River in particular, is overrepresented in the sample, relative to the total number of apprentices registered in Illinois.

(See Tables A-1, A-2, A-3, A-14, A-15, A-16 and A-17 in the Appendix.)

BAT data and program sponsor and apprentice responses were compiled and cross-tabulated by computer. The personal interviews were analyzed by project staff tabulating responses separately for direct participants, educators and others. The responses to three of the questions were omitted because these questions were misinterpreted by most respondents.

Bureau of Apprenticeship and Training records, and surveys and interviews, provided the data for Chapter VI, "The Illinois Experience." The sources for Chapters II and III, "How the Apprenticeship System Works" and "Issues in Apprenticeship," were individuals closely connected with various aspects of apprenticeship such as state apprenticeship councils and vocational education/apprenticeship links, and research studies examined for the review of literature.

SCHEMATIC REPRESENTATION OF DATA COLLECTION



# CHAPTER VI. THE ILLINOIS EXPERIENCE

## BAT/EEOC Data

The records of the Bureau of Apprenticeship and Training and of the Equal Employment Opportunity Commission (EEOC) yielded data that offer several insights into apprenticeship in Illinois. The Dictionary of Occupational Titles listings used by the BAT and the occupational titles used by the EEOC are not always synonymous; therefore, comparing figures often required making assumptions about which DOT titles were included in the EEOC figures. Furthermore, a changeover in the BAT recordkeeping system in 1973 caused confusion (see Chapter V, Methodology), and BAT data from 1975 is incomplete due to non-responses to BAT by some program sponsors.

The available BAT records show an attrition of 942 apprentices in 1975, or 5.3%. This reduction in the number of apprentices may have been the result of the business recession of that year and, if so, it reinforces the point that the hiring of apprentices is largely based on immediate needs rather than on estimates of future needs for trained craftspeople (see Table A-1).

The race and sex composition of apprentices in Illinois is roughly equivalent to the nationwide composition; as is the case for the U.S., there are few women in apprenticeship in Illinois. There is a large variation in race composition by craft, suggesting that some programs have been less aggressive than others in recruiting minorities for apprenticeship; no programs have more than a few women. In personal interviews conducted with 124 individuals, and in the program sponsor survey, virtually no program sponsor acknowledged that recruitment of minorities was a problem for his program. The EEOC data imply otherwise (see Tables A-1, A-2 and A-12).

BAT records show that 68% of apprentices in Illinois are in programs located in the Chicago metropolitan area (Berkeley, Des Plaines and Lansing). (See Table A-1.)

There is a heavy concentration of apprenticeship in several areas:

-- Meatcutters (939), which reflects the growth of supermarkets throughout the state.

-- Construction trades (9,166), which accounts for 62% of apprentices in Illinois, broken down as follows:

| | |
|---|---|
| Structural Steel Workers | 384 |
| Ornamental Iron Workers | 107 |
| Painters (Construction) | 405 |
| Cement Masons | 239 |
| Carpenters | 2,129 |
| Bricklayers | 456 |
| Pipefitters | 656 |
| Plumbers | 860 |
| Roofers | 1,833 |
| Insulation Workers | 196 |
| Lathers | 8 |
| Plasterers | 33 |
| Operating Engineers | 830 |
| Floor Layers | 3 |
| Glaziers | 17 |
| Sheetmetal Workers | 763 |
| Linemen, Light and Power | 26 |

Technological changes in construction are reflected in the fact that lather, plasterer and floor layer apprentices totaled only 44, while there were no paperhanger, stonemason or terrazzo worker apprentices. Such changes also reflect large numbers in operating engineer and sheet metal apprentices.

There are several occupations for which apprenticeship does not appear to entirely supply the needs for skilled craftspeople in Illinois:

-- Office Machine Servicemen
-- Automobile Mechanics
-- Linemen and Installers
-- Radio, TV and Appliance Repairmen

It is likely that training for these occupations takes place in non-registered programs. Non-registered programs are those that are not officially registered with the BAT (see Table A-3).

There are several implications in these findings. First, a common data collection system and common definitions need to be developed for all agencies concerned with apprenticeship. Second, (to minimize shortages or surpluses of trained craftspeople in the future) enrollment of apprentices should ideally be based on forecasts of future demand rather than on current demand for specific occupations. Third, the absence of women, and the uneven record of minorities in apprenticeship, suggests the need for strong non-discriminatory vocational counseling to aid these groups. Finally, the untapped source of unregistered programs offers the potential for the development of new modes of classroom training.

Program Sponsor Data

There are two limitations on the program sponsor data. First, as explained earlier, training programs with large numbers of apprentices are underrepresented in the sample. Second, the results are often understandably biased by the fact that program sponsors were asked to rate themselves (see Table A-4).

The findings show that of the programs reporting, 90% start apprentices at 40% or more of the journeyman rate. Data from 1973 indicate that this apprentice rate may be equal to or lower than rates for occupations requiring comparable levels of education and training.

TABLE VI-1

WAGE RATES IN PEORIA, ILLINOIS, 1973

| | |
|---|---|
| Journeyman | $8.08 |
| Journeyman helper | 6.94 |
| Apprentice | 3.23-4.84 |
| Driver | 6.37 |
| Driver helper | 4.86 |
| Local transit worker | 4.37 |

Source: Handbook of Labor Statistics, Bureau of Labor Statistics. Table 97, 1975, p. 243.

The gap between the apprentice wage and that of higher-wage occupations is, however, more than made up by the $2 to $3 future advantage of journeymen. Apprentices confirm that future earnings are an incentive to enter apprenticeship; about one-fourth of them include "good journeyman wages and fringes" as a factor in helping them decide to enter apprenticeship (see Table A-26). However, a number of observers have made the point that life styles and patterns have changed and the apprentice is now more independent of the family at an earlier age. Rather than live at home with parents during apprenticeship, many apprentices need money to pay room and board or to support their own families. This change in life styles and values is a marked shift from the in-kind support of the unmarried apprentice who lived with his parents as a supplement to the low wage. This is often cited as a barrier to attracting some people into apprenticeship.

Point of view is important in interpreting survey data. Apprentices and program sponsors surveyed indicated a different distribution of related instruction providers for their respective programs. Apprentices reported that employers and labor organizations most frequently provided the related instruction, while program sponsors reported that employers and community colleges most frequently provided it. It is possible that apprentices confused related instruction providers with their most frequent contact points, and that this accounts for the discrepancy in results (see footnote to Table A-6, and Table A-23). At any rate, it is impossible to ascertain from these data how many programs do not use public educational institutions for related instruction. Personal interviews with program sponsors indicate that this number may be substantial, and that this non-use of public institutions is the result of dissatisfaction with or lack of information about them. Several program sponsors said that they knew nothing about the community colleges, and one apprentice coordinator stated, "We used to have classes at the community college level, but we didn't get much cooperation from them, so we do it ourselves." Even this has to be interpreted in light of the history of apprenticeship and vocational education (see Chapter IV, page 52).

To the degree that small apprenticeship programs are associated with small towns, the data show that the role of the community college is stronger in small towns than in the Chicago metropolitan area (see Table A-6).

Program sponsors rate related instruction for their programs high for job-relatedness, organization, completeness, relevance and overall quality. This suggests that program sponsors are satisfied with the system they created. In spite of the bias inherent in self-rating, 8.7% feel that there is a need for improvement. By contrast, 58% of apprentices indicated some type of problem with related instruction. This discrepancy is not surprising, in view of the fact that the apprentices, not the program sponsors, attend the classes. Similar discrepancies between students and teachers are found in other training and educational institutions (see Tables A-7 and A-29).

Few program sponsors felt that on-the-job and classroom instructors need to improve their methods. Again, the bias inherent in self-rating is present (see Table A-8).

Program sponsors reported their highest frequency of contact with employers and their lowest frequency of contact with Illinois vocational education and outreach agencies. A weakness in these findings is that the interpretation of "Illinois vocational education" and "outreach agencies" was left to the respondent. Low frequency of contact by sponsors with labor organizations is accounted for by the fact that relatively small non-joint programs appear to be overrepresented in the sample (see Table A-9).

Program sponsors felt that contacts with employers are most helpful and that contacts with vocational education and outreach agencies are least helpful. Again, the interpretation of "Illinois vocational education" and "outreach agencies" was left to the respondent, and the findings seem to be biased by self-rating (see Table A-10).

Program sponsors gave vocational education mixed reviews in both the survey and personal interviews in potential of agencies to aid in improving apprenticeship programs. Fifty-one percent of all respondents felt that vocational education could be helpful; 13% responded that vocational education is a barrier to improvements. As program size increases, the "barrier to improvements" response increases. One possible cause of this is a sense of proprietorship among larger program sponsors. Interpretation of this result is complicated, however, by the fact that the "no-response" category is nearly twice as large for employer-run, non-joint apprenticeship programs than for programs operated by JACs (see Table A-11).

In the personal interviews, program sponsors expressed ambivalence about the role of vocational education in preparing young people for apprenticeship. On the one hand, most responded that vocational education is not useful or necessary in preparing a young person. On the other hand, these same individuals also said that vocational education helps facilitate apprentices' progress through training programs. Furthermore, there was general agreement among program sponsors that young people are poorly prepared in mathematics and communications skills. Similar dissatisfaction with mathematics and communications skills was indicated by employers in 15 southwestern Illinois counties who were surveyed in a separate study in the spring of 1976 (Educational Planning in the Labor Market, Northwestern University Graduate School of Management and School of Education, 1976). One might conclude from these findings that vocational education in conjunction with high-quality basic education would be a sound background for apprenticeship.

Program sponsors feel little dissatisfaction with apprenticeship as it is now operated, again demonstrating that they are happy with the system they have created. As was observed earlier, program sponsors who were personally interviewed and sponsors who responded to the survey failed to recognize the decidedly mixed apprenticeship record with regard to minority participation; in the surveys only four percent indicated that access to apprenticeship is a problem for minorities. A somewhat higher percentage, 8.7%, said that access by women is a

serious problem. However, some recognition that apprenticeship is not as open for women as it is for men is suggested by the 23.5% response that access by women is a moderate problem (see Table A-12). These responses may be accounted for in part by the absence of good data widely published about participation of women and minorities in various apprenticeship programs, and in part by attempts to "solve" the problem by ignoring it in hopes that it will disappear.

Twenty-five percent of program sponsors responding favor the establishment of a state apprenticeship council and 31% oppose it, the remainder being indifferent or not responding. The large percentage of indifferent program sponsors can be accounted for by the fact that the sample is biased toward small programs; small programs are less likely to be informed about the issue than are large programs. In fact, strongest opposition to the concept of a council seemed to come from large programs (see Table A-13).

Also included on the program sponsor survey was an open-ended question which asked respondents to explain their reactions to the proposal to establish a council. The following is an interpretation of responses:

-- There was little if any difference in the substantive content between large and small sponsors.

-- Those sponsors who favored the council gave reasons which suggested the need for general improvement of the apprenticeship system, implying that such a need exists.

-- Those opposing the council suggest that things are fine as they are and that there is no need for change.

-- Those who said they were indifferent tended to lean against the council idea, using such phrases as: "our program is all right," "we don't need another bureaucracy," "it wouldn't work."

-- Reasons for support fall into five general groupings:

  - Standardization, to facilitate planning and coordination

- Guidance on policy
- Ability to attract more young people (presumably because of standardization) to enlarge the supply of craftspeople
- Reduction of union influence
- Strengthening the support of educators, presumably through increased promotion of apprenticeship that a council could offer.

-- Reasons given against the council include the following:

- Political involvement by council officials in programs
- Bureaucratic red tape, duplication of services, added costs to the taxpayer
- Imposition of services that are superfluous; current programs are perceived as successful
- Government interference.

Data from Apprentices

As explained earlier, downstate apprentices are overrepresented in the sample, but the composition of race and sex in the sample is roughly equivalent to the statewide composition. Apprentices who responded to the questionnaire are those who have successfully entered and progressed through the system; those who have dropped out or who have not secured admission were not contacted (see Tables A-14, A-15, A-16 and A-17).

No conclusions can be drawn about the distribution of apprentices surveyed, by year, as there is no BAT data with which to compare (see Table A-18).

Ninety-one percent of apprentices surveyed have a high school diploma or have completed one or two years of college. The high percentage of high school graduates is to be expected, as a diploma is a prerequisite for most apprenticeship programs (see Table A-19).

Fourteen percent of white apprentices and 38% of black apprentices are over 30. The difference in age distribution between blacks and whites may be the result of the civil rights movement in the late 1960's and early 1970's, when apprenticeship programs were compelled to eliminate age ceilings when they acted as barriers (see Table A-20).

Eighty-one percent of apprentices rate themselves as happy with apprenticeship, of which 25% are very happy. This is extraordinarily high, and suggests that apprentices are realizing their expectations. It may also suggest that the screening process for apprentices is well suited to producing satisfied workers (see Table A-21). These data do not, however, reflect the views and attitudes of those who were denied admission into apprenticeship, those who dropped out, or those who failed or otherwise did not reach their expectations.

The data show that there tends to be a longer waiting period from application to enrollment for blacks than for whites. Thirty-three percent of whites had to wait over six months, compared with 52% of blacks. In the absence of more data, no conclusion can be drawn with regard to this difference in waiting period (see Table A-22).

Most apprentices learned about apprenticeship from family (29%), friends (30%) or at work (16%). Blacks tend to rely slightly more on the formal structure than on family and friends, probably reflecting the fact that blacks' families and friends are less likely to be apprentice-trained than are whites' families and friends. High school and college counselors and teachers played a minor role for both blacks and whites (see Table A-24).

Most apprentices feel that the information they received about apprenticeship prior to applying was helpful, although 20% indicated that they would have liked to know more. Program sponsors, educators and community leaders who were personally interviewed believed that the information supplied to young people about apprenticeship is inadequate. The discrepancy between the opinions of

apprentices and non-apprentices is accounted for by the fact that apprentices surveyed were successes, whereas people who were interviewed considered all young people who might be candidates (see Table A-25).

Blacks and whites were attracted to apprenticeship by the same factors: working with their hands, good journeyman wages, earning while learning, and encouragement by family and friends (see Table A-26).

Forty-eight percent of apprentices felt that mathematics was helpful in preparing them for apprenticeship, followed by 43% who felt that vocational training courses were helpful. A shortcoming of the question asked about high school preparation was that it did not include courses in communications skills as an alternative. Even with this shortcoming, the apprentice data confirms the personal interview data that both basic and vocational education is important in the secondary-level preparation of apprentices. Fifty-six percent wished they had taken vocational education courses, and 22% mathematics. Again, courses in communications skills were omitted as an alternative in the question about courses apprentices wished they had taken.

Forty-two percent of apprentices felt they had no problems with related instruction. For the remaining 58%, the most common problems were distance to the location of related course instruction (12%), and applying what is learned in class to work on the job (17%). For those who have trouble applying what is learned to work on the job, it is difficult to ascertain whether the trouble is due to poor instruction or to general dislike of the classroom.

## Data from Educators

The source of data on educators is 41 personal interviews that were conducted in the spring of 1976. Almost all educators were community college administrators; only community colleges with related instruction programs were

contacted. Six educators were associated with secondary schools or with the Washburne Trade School. No administrators of area vocational centers were interviewed.

-- Fifteen educators expressed the view that vocational secondary school counseling in apprenticeship is poor and needs improvement.

-- Eleven felt that vocational education at the secondary level is not useful or necessary in preparing young people for apprenticeship; 20, however, believe that a vocational education background facilitates an apprentice's progress through training.

-- Eighteen felt that young people are poorly prepared in reading and communications skills, while 24 felt that high school graduates are lacking in mathematics skills.*

-- Twenty believed that the schools ought to have or assume a greater role in providing information about apprenticeship.

-- In enumerating problems with their roles in the apprenticeship system, 11 mentioned developing improved relationships with unions.

Only six educators answered in the affirmative that they had been consultants to apprentice training programs. This small number is significant in that it indicates that educators are not ordinarily regarded as a resource by program sponsors.

*This is not a particularly new insight: it is shared by European and Russian educators and American employers over the past two centuries. Many people seem chronically displeased with the education of the young. In the words of an employer surveyed in southwestern Illinois during the spring of 1976, "Our schools are not doing the job in basic reading, spelling, math or the use of proper English.... The student is not prepared for higher learning and is involved in high school courses that have no meaning in preparing a student for the job market. Standards are being lowered in all school levels." (Rodgers, Educational Planning in the Labor Market, Vol. 1. Evanston, Ill.: Northwestern University, 1976, p. 154.)

There do not seem to be uniform standards for classroom instructor qualifications. Some administrators said they hire journeymen; others look for teachers with craft experience, while others attempt to find individuals who are both journeymen and certified teachers.

Thirty educators felt that budget and reimbursement is a problem for programs in their institutions. Some complained about less than full reimbursement by the state, while others believe that vocational education in general is underfunded. Not surprisingly, the individuals associated with the Washburne Trade School were angry about the non-reimbursement of related instruction in that institution.

Most educators expressed no problems in their relationship with other vocational education personnel in their areas. The forms of contact between vocational education administrators, according to those interviewed, are exchange of information and sharing of facilities.

The most frequently mentioned recommendation by educational administrators to establish or expand a working relationship with apprenticeship programs was "cooperation between individual institutions, industry and labor." Administrators whose institutions provided related instruction for large numbers of apprentices observed that this cooperation was instrumental for the success of their programs, implying that program sponsors' utilization of public institutions was the result of mutual efforts by the educators and the sponsors.

One aspect of this section which needs further probing is that educators' responses seemed to be based heavily upon "know-how" and experience expressed in the form of feelings and opinion. No respondent cited solid evidence or research to support opinion. "Know-how" should in no way be denigrated, but the leadership of educators might be enhanced and their advice and consultation more frequently sought if they also provided guidance which is based on research, even of a limited nature.

Data from Community Organization Members, Professional Organization Members, and Government Officials

The source of data from community organization members, professional organization members and government officials was interviews with 31 of those individuals conducted in the spring of 1976. Community organization members included officials of organizations with minority constituencies such as the Urban League and the Latin American Task Force. Professional organization members included officials of the Building Construction Employers' Association of Chicago and the Building Trades Council of Chicago. Government officials consisted mainly of staff of the Bureau of Apprenticeship and Training.

While the above three groups of individuals have different roles within the apprenticeship system, they were very much alike in their dedication to apprenticeship as the appropriate form of training to produce skilled craftspeople. Black and Spanish-American community organization leaders want "in"; they do not wish to change apprenticeship as a training system, only the rules of entry. Similarly, professional organization and government officials had no complaints about the system as training; their concern was that not enough employers are willing to install programs. Respondents located in the Chicago area, including blacks and Spanish-Americans, were unanimous in their praise of Washburne Trade School.

Other results of the interviews are as follows:*

-- Twenty-five respondents expressed the view that secondary school vocational counseling for apprentices is poor and needs improvement.

-- Ten felt that vocational education at the secondary level is not useful or necessary in preparing young people for apprenticeship, with 13 believing that a vocational education background helps facilitate an apprentice's progress through training.

*The reader should note that these results are similar to the results from program sponsors and educators.

-- Nine felt that young people are poorly prepared in reading and communications skills, while 17 felt that high school graduates are lacking in mathematics skills.

-- Seventeen believed that the schools ought to have a greater role in providing information about apprenticeship.

Data on Equal Opportunity In Apprenticeship

Survey data showed the following:

1. Equal opportunity is not regarded as a serious problem to most persons already in the apprenticeship system, whether the apprentice, the union, the employer, or a sponsor. In fact, in interviews, the subject is seldom mentioned. This is in contrast to the attitudes of persons and organizations on the outside such as the Urban League and other civil rights organizations, academicians who have studied the question, leaders in political life, and EEO enforcement agencies.

2. The percentage of minority apprentices in all craft categories is approximately equal to minority representation in the population of the state of Illinois. However, as in most previous studies, minority apprentices are underrepresented in such crafts as plumbers, electricians, tool and die makers, draftsmen and electronics technicians, and somewhat overrepresented among cooks and bakers and in the so-called "trowel trades" including common labor.

3. On the basis of the data which could be assembled it would appear that the overall record of employing minorities in apprenticeship (11.3%) in Illinois is somewhat better than that of the United States (8.8%).

4. The Illinois record on employing women (0.3%) is not as good as that of the United States (1.1%). Though sex discrimination seemed to be somewhat more on the minds of those already in the system than was race, discrimination against the handicapped was considered a more important problem than either sex or race discrimination.

5. The Bureau of Apprenticeship and Training collects data on race and sex informally through BAT regional office staff. These data are collected by program (which may include more than one craft) and are then aggregated by state and region but not by craft; race data were not collected in this form before 1970, and sex data are of more recent origin. Therefore, it is difficult to make time comparisons using these data or to make comparisons with EEO-2 data gathered from program sponsors. One of the authors of this report published a paper on the years 1960 to 1970 in Chicago and found that some improvement had occurred.* It would have been helpful to this report if data had existed to show what is really happening in Illinois.

Whether it is federal or state law governing fair employment practices, compliance review requires reliable and complete data about apprenticeship. The interviews give the feeling: absent the data, absent the problem. It seems reasonable to expect that the Bureau of Apprenticeship and Training and both the federal and state fair employment practices agencies include regular review and reporting procedures on the entrance of minorities and women into apprenticeship by craft and by state. This procedure will not, however, assure that very small contractors who are in and out of business from time to time will report with the regularity of a large, established contractor. It is important to keep in mind that BAT reports only on registered programs. There are, however, numbers of unregistered programs in the state which neither they nor anyone else knows much about, and these should be monitored by the state FEPC. The complexity of data gathering, resistance to it and cost are not to be underestimated. Nevertheless, this should not be reason to ignore the problem.

Another reason for having reliable information about minorities and women in apprenticeship is to dispel what is obviously considerable misinformation floating about, some of which was picked up in the interviews. No state organizational rearrangements or expression of good intentions can improve performance in this area without the systematic and regular reporting of efforts to

*Cassell, Frank H. "Chicago 1960-1970: One Small Step Forward." Industrial Relations, Vol. 9, No. 3, May 1970, pp. 277-293.

increase the numbers of minorities and women recruited, counseled and provided pre-apprenticeship training, the numbers admitted into apprenticeship, drop-outs, completers and affirmative actions taken to increase success of the program in Illinois.

Of equal importance is enlargement of the economic base of the State of Illinois as the basic means to increase employment opportunities. As this study unfolded we were reminded of the key role played by the crafts in the creation of employment opportunities. They are the "bottleneck" occupations without which economic growth and employment development are stunted. The crafts themselves are an incentive which attracts employers to the state and to a region. They are a highly skilled resource, disciplined and stable, around which an industry can plan and build and look ahead.

Thus, any effort to strengthen equal opportunity in apprenticeship rests not merely upon enforcement of the law, but also upon enlarging the supply of jobs, thus enabling a sharing of a growing supply of apprentices rather than on sharing a shrinking supply or, if you will, scarcity. Such a strategy should be kept in mind by anyone concerned with public policy. Sucy policy would avoid the distressing events dramatized in the case of the "Black Coalition and the Chicago Construction Industry," which turns out to be a zero sum game in which a decline in federal building contracts forces a situation in which gain for one party is at the expense of another party, instead of a gain for both by sharing a growing number of jobs.*

Public policy must be designed so that policies move together, not in opposition; so that people are not pitted against one another, struggling over scarcity; so that people can cooperate. This means a full employment policy insofar as the State of Illinois can contribute to it. In concrete terms this implies statewide and regional public construction planning and expenditures to increase

*See Frank H. Cassell and Jean J. Baron, Collective Bargaining in the Public Sector, Columbus, Ohio: GRID, Inc., 1975, pp. 287-377.

such activity as construction and building declines in the private sector and vice versa. As described in the aforementioned "Black Coalition" case, plans to share increases in employment were obstructed when a massive cutback in federal construction expenditures occurred and displaced workers with substantial seniority coincident with stepped-up efforts to improve black participation in the crafts.

## CHAPTER VII. RECOMMENDATIONS

Among the most difficult barriers which had to be overcome in this study were the suspicions of unions and employers in the apprenticeship system toward vocational education. This initial distrust also reflects the most difficult problem facing people in the state interested in the development of a policy framework regarding the role of vocational education in the apprenticeship system of the state. The issues are familiar to people in apprenticeship and vocational education in Illinois. First is the question of who should control training, under what conditions and toward what ends. The second issue concerns equality of educational opportunity in controlling access to training and employment in apprenticeship programs of the state. Much of the difficulty in both the present study and the implementation of a policy involves the view among many people in the apprenticeship system that vocational education represents a threat to the present system of training in the craft occupations. Clearly one of the first steps in developing such a policy for involving vocational education, therefore, is to explore alternatives which ameliorate this perceived threat with an attitude of collaboration and cooperation.

This study began with the issue of a State Apprenticeship Council for Illinois clearly among the alternatives to be explored. It uncovered strong opposition to such a council among many of the larger, key apprenticeship programs in Illinois. It found further substantial employer and union satisfaction with apprenticeship arrangements as they presently exist. One crucial problem in forming an SAC under vocational education leadership is the clearly defined process for creation and operation of an SAC. Federal rules require that the SAC be organized through the state Labor Department. Though creation of a state advisory council for apprenticeship under vocational education is not impossible, it is difficult, and raises other problems which would have to be faced. *

*Delaware has such a state advisory group organized under vocational education, but it is not recognized as an SAC by the BAT. Maryland's SAC was also organized under educational leadership, but it remained unrecognized by the BAT until it was moved to the state department of labor four years later.

Unless and until employers and unions directly involved in the apprenticeship system request formation of a State Apprenticeship Council through the BAT and state department of labor, continued pursuit of that objective by those in education is likely to remain a barrier to fruitful relationships between apprenticeship and vocational education.

The recommendations which follow are therefore based on the following premises:

1. Vocational education and apprenticeship are partners in an enterprise in which their functions are complementary, not competitive.

2. Their efforts are aimed at promoting growth of jobs to enable a sharing of growth rather than retrenchment or scarcity.

3. Their efforts are an essential element of the manpower and economic resources of the state.

4. This report's concept of regionalization offers a constructive alternative to organization of a new, centrally controlled state council on apprenticeship.

One Alternative: Regional Apprenticeship Advisory Boards

The finding that educators should not insist upon formation of a State Apprenticeship Council does not mean that there is no role for vocational education in that system. It does suggest, however, the need for a different type of resource which can facilitate cooperation and collaboration to the mutual benefit of people and institutions in both vocational education and apprenticeship programs of the state. We shall refer to an alternative resource to be recommended here as Regional Apprenticeship Advisory Boards. These would cover appropriate areas within the state. The role of each regional advisory board would include six dimensions:

1. Labor market information including quantitative and qualitative data regarding the demand, pay, benefits, hours, quality of on-the-job training, management style, autonomy in the work place, opportunity structure, physical or emotional stress, travel, time, cost, distance and other related factors about various types of employment in crafts and related occupations.

2. Coordination of these efforts with those which are concerned with manpower, employment and economic development policies in each region and for the state.

3. Facilitation of communication among the various educational and training resources able to contribute to the supply of skilled, trained workers in craft occupations in Illinois.

4. Improved use of employment and placement resources in each region.

5. Facilitation of compliance with existing fair employment and equal employment opportunity regulations of the BAT and agencies of federal and state government. Responsibility for compliance rests with the executive branch of the state, and with review of funding and performance by the Illinois General Assembly.

6. Research and program development in the crafts and related occupations in response to employment needs and opportunities and training resources in each region of the state.

The role of the RAABs is more general than that specified by the BAT for State Apprenticeship Councils, and leaves to BAT its frequent functions in the state -- none is usurped. An SAC could not easily be adapted to the larger dimensions listed above, nor to the recommendations in this study for building a collaborative relationship which focuses on employment opportunities in the full range of occupations dependent on crafts and trades. The RAABs would link the crafts and vocational education to other economic and educational interests in each region of the state to improve the total advantage to apprentices and people in related careers. As noted earlier, the goal is to enlarge the pie rather than to devise ways of slicing a shrinking pie. SACs and the BAT tend to focus on the mechanics of managing and monitoring the apprenticeship share of the employment picture; the regional advisory

boards, however, would attempt to build on the complementary roles of apprenticeship and vocational education as economic resources for the mutual benefit of all people throughout the regions of the state.

The Basis for Regional Apprenticeship Advisory Board Roles

Several concepts and assumptions form the basis for the recommendations and proposals which follow in the development of regional boards to facilitate formulation and application of policies linking vocational education and apprenticeship programs in Illinois. These elements are summarized briefly below.

1. The validity of specialization of function in the provision of educational and training services associated with apprenticeship and related skills must be recognized before relationships can be developed in the trades and craft occupations.

2. Mutually rewarding incentives for cooperation must exist before linkages among institutions such as the BAT, vocational education, unions and employers can be achieved; such incentives depend on recognition of the legitimacy of the roles and functions of each agency or organization in the apprenticeship system.

3. Access or barriers to apprenticeship are often a function of the supply of jobs in the trades and craft occupations. This places special emphasis on economic development from which employment opportunities and the demand for skilled workers are derived. This is especially important as women, minorities and the handicapped seek access to the trades and craft occupations.

4. Regionalization of economic and educational development resources is a manageable unit around which to build effective community participation and program planning.

5. Apprenticeship and employment in the skilled crafts and trades are key elements in job creation for regions and the state. The crafts are "bottleneck" occupations to economic expansion, forming a "critical mass" of skills to attract and keep business and industry within a region or state.

6. Education and training are economic resources for facilitating lifelong learning and adaptation to change. Preservation of the skilled labor force required to attract and retain business and industry in a region depends on access to a series of experiences and education throughout life which enable people to adapt to changes in employment opportunities and skills.

7. An efficiently operating labor market is a useful organizing principle in understanding the roles of labor, mangement, the BAT, vocational education and individuals.

Objectives of Regional Apprenticeship Advisory Boards

The objectives of regional advisory boards focus on preserving and legitimizing the complementary roles of people and institutions in the pluralistic educational and training systems of Illinois. Secondary schools, community colleges, area vocational centers, JACs, apprenticeship program sponsors, unions and employers each contribute to the economic and employment base of a region. Each performs important, mutually supportive functions related both to changes in people and changes in the labor markets. These conditions require adaptation to change throughout life. The specific recommendations and conclusions of this study build on the underlying concepts just reviewed and the general objectives summarized below.

The first objective of the RAABs is to develop training programs which preserve the employment mobility of the individual. The elements of this function of the advisory boards include assuring access to jobs and career opportunities in the crafts and related occupations, aiding the individual in realizing his or her job and income expectations, helping people adapt to changes in technology which affect the character of work and skills required to perform adequately on the job, and facilitating career changes as shifts occur in (1) the health and physical strength of the individual, (2) the personal interests and aspirations of the person, and (3) the skills needed in the society.

The second objective of regional advisory boards is to improve training for "well-rounded craftspeople" who can maintain their positions in craft occupations. Employment mobility and security are dependent on sound initial training in basic learning skills and in the requirements of the craft occupations. This objective requires that employers, unions, JACs and others in the apprenticeship system are partners in assisting educators to understand these conditions and requisites of success in the craft occupations and trades.

The third objective adds another element to the training of apprentices to improve the related training provided by secondary schools and community colleges. Apprentices should be introduced to knowledge and understanding of craft-related occupations which reach outside specific jobs in the crafts. This need not include detailed knowledge of the tasks and requirements of craft-related occupations to the same degree that apprentices are prepared in their specific on-the-job training, but vocational orientation can provide information which enables apprentices to make better informed decisions about additional training and opportunities in related occupations as their personal interests, physical attributes and skills change.

The fourth objective follows from the third. Educators and regional advisory boards should work together to improve opportunities for continued learning to preserve adaptability and prevent obsolescence for people in the crafts and related occupations as they grow older. This is especially of concern to community colleges; their contribution to the apprenticeship sysem extends beyond the initial training to include responsiveness to the needs and interests of journeymen who wish to extend their training and employment into wider career opportunities such as entrepreneurship, design, architecture, construction and trades management, coordination, finance and accounting.

The fifth objective of the regional advisory boards focuses on the role of education and apprenticeship in improving labor market information and the efficient allocation and utilization of the labor force in Illinois and its regions. Both vocational education and the apprenticeship system can contribute as labor

market intermediaries to a continuing flow of labor market information to aid the plans of people, schools, states, regions, cities, intermediaries such as teachers, parents and counselors, and employers and unions. Cost-conscious employers assume training costs only as necessary. They train apprentices as current business cycles warrant, but longer term planning and training may be especially important to improving the employment base by attracting new jobs and industry to the regions of the state. Regional advisory boards can facilitate longer term planning and training to stimulate economic development.

The sixth objective attempts to bring these elements together to focus on the role of apprenticeship and vocational education as complementary economic resources in the development of the state and its communities. The goals of the RAABs are built around human resources and the education and training institutions as economic resources of each community and region in the state. As noted in the introductory comments from the First National Bank of Chicago's recent research report on the "shaky budget balance of Illinois" (see page 1 of this report), there is a need RAABs should address to improve the economic growth and development of the state, stimulate increases in personal income, and reduce the costs of unemployment to individuals, employers and communities. The loss or gain of jobs and the stability of the employment base in the state depend on aggressive, collaborative posture linking vocational education and apprenticeship in a mutually supportive system benefitting employers, unions, schools and people throughout the state.

Strategies for Organizing Regional Advisory Boards

Among the most crucial elements of the proposed network of regional advisory boards is the issue of who is to establish them, lead their early efforts, and provide them with financial and organizational support. While other studies by the researchers who conducted this review of apprenticeship and vocational education have focused more directly on the organizational, education and social elements

of creating such councils,* this report will attempt to build on that experience with special attention to strategies for making such a system of regional councils work.

The first and perhaps the most crucial step in this process focuses on the question of initial leadership in each region of the state, and the state role in facilitating identification and organization of people willing and able to serve. The state role should be to help identify the geographic and population centers of potential regions, rather than to define the specific boundaries for any regional council. The state should attempt to provide incentives, encouragement and support which will contribute to a climate conducive to collaborative organization and operation of regional boards. These dimensions, however, specifically preclude a mandate from Springfield which would define boundaries and specify goals for each regional board. Such a mandate would undermine the educative and social process through which effective advisory boards are most likely to be organized and to mature.

This process of facilitating a climate within which collaborative planning may begin between vocational education and apprenticeship is dependent upon a larger task of linking vocational education to all types of occupations and employment opportunities throughout the state. The apprenticeship advisory boards would, therefore, be one element of a larger network of representatives from schools, employers, unions and community organizations. RAABs would focus special attention on apprenticeship and training in the craft occupations and trades; similar, parallel advisory boards would focus on additional training issues for other occupational classifications in each region. These would be linked through involvement of representatives from manpower planning councils under CETA, employer

*See especially Chapters 10 and 11 of Ronald C. Rodgers, Frank H. Cassell, et al., Educational Planning in the Labor Market, Vol. 1., Evanston, Ill.: Northwestern University, 1976. Copies are available from the Research and Development Section, Division of Adult, Vocational and Technical Education, Illinois Office of Education, 100 North First Street, Springfield, Ill. 62706.

associations, employment service offices, labor organizations, local chambers of commerce and other local interest and community organizations concerned about economic development, training and jobs in each region.

The initial step in developing regional advisory boards for apprenticeship might be to identify potential members with the help of advisors from various departments familiar with local leaders throughout the state. The governor could then appoint temporary council chairmen and representatives from business and industry, labor, vocational education, higher education, and government based on nominating lists developed through the Department of Adult, Vocational and Technical Education, the State Department of Labor through the BAT and the Bureau of Employment Security, the Department of Local Government Affairs, the Governor's Office of Manpower and Human Development, and the Department of Business and Economic Development. Permanent leadership within each region should then emerge from this initially appointed group based on involvement of the key people and institutions involved with advisory boards based on quality of membership, participation and demonstration of interest on the part of people and institutions asked to support the boards.

One of the additional supportive roles best performed at the state level is allocation of funds to begin two to four pilot advisory boards. The strongest support for such a network of councils is likely to emerge if money comes from several sources, including public and private facilities and resources outside state government. We recommend that the Department serve as a communication link between regional councils, and that the Department assume leadership in securing funding and policy-level support to help organize the network of regional councils. The success of each council will depend not only on the quality and dedication of appointees in each region, but also upon the availability of resources adequate to provide clerical and organizational support within institutions willing to lend their facilities and staff to assist in the tasks of the RAABs.

Recommendations for Operating Regional Advisory Boards

1. Improve career guidance and occupational choice counseling about crafts and related occupations by increasing the knowledge and sophistication of teachers, administrators, parents and students as they formulate attitudes and make decisions about work, jobs and careers. Information on the qualitative aspects of work are essential and can be provided only by people involved in these occupations directly. People need information about the opportunity structure both in the crafts and in careers related to or based on the crafts as a supplement to quantitative data about the number of job openings expected in various types of employment. Better information and vocational counseling will improve awareness of alternative job ladders emerging out of craft training and experience, alternative careers which tap special talents of the individual or respond to changes in his or her interests, health and abilities, and assistance in helping the person relate skills and interests to work that is satisfying and available in the places where he or she is willing to live and work.

2. Improve basic education preceding apprenticeship. Among the most important tasks facing all educators is the growing demand among employers, unions and others in private sector labor markets that young people have the basic learning skills (quantitative, reasoning, communications) necessary to succeed in apprenticeship and on-the-job training. The "career awareness" aspects reflecting the meaning of work in the lives of people, its opportunities and its contribution also are important areas of basic training required to help individuals understand what it means to be ready for work and how to qualify, find, enter and succeed in different types of employment. The third dimension of education as viewed here regards the citizenship areas of responsibility as the individual moves to a position of personal career commitment and management for the mutual benefit of the person, employers and the communities in which they live and work. The assumption underlying these tasks is that the teacher is an intermediary as well as an instructor. Teachers need access to knowledge of acquaintance with the conditions and requirements attendant to success in the crafts and related occupations; the RAABs can

provide the link between education and appenticeship to meet that need. Apprentices and craftsmen should be a critical element in giving solid meaning to careers and occupational choice, and in understanding the importance of basic learning skills for success in various types of work.

3. Improve related apprenticeship training. Satisfaction expressed with the training component of apprenticeship programs is based on the feelings of persons directly involved, but these do not necessarily represent the needs and interests of the larger community. Knowledge of acquaintance of teachers about jobs should be elevated in terms of effective linkage between classroom training and on-the-job experiences of apprentices. Curriculum should be evaluated as to whether it is an educational building block for adaptation to change and accommodation to multiple careers including apprenticeship.

4. Link educational and training resources with employment processes in regard to apprenticeship. RAABs should have a primary role in linking apprenticeship interests with educational and economic planning through involvement of employers, unions, JACs, the BAT, Apprenticeship Information Service activities of the Employment Service (AIS/ES) and educators. Linkages should be established by function and efficiency in performance of each function. Educational aspects of concern to the regional advisory boards may include criteria for assessing teaching competencies for apprenticeship programs, proximity to training resources, specialization of knowledge and skill in the crafts, and special attributes of instructors and institutions which help apprentices, success on the job. Linkage also facilitates bringing attention to the issues related to attracting people of substantial ability into the crafts and related careers, attracting and retaining employers as a stable and growing employment base, and factors which facilitate economic development in a region. RAABs also may contribute to the larger educational process involving a variety of institutions by linking and sequencing educational resources so that the individual can train to gain access to the crafts, continue his or her education to refresh knowledge and skills and learn new skills, and supplement apprenticeship training as people build on craft experiences while changing careers. RAABs should be involved in locating physical

resources to aid in regional economic development and facilitate the economic use of existing facilities. Linkage also should include provision of an educational research base to improve both processes and curriculum content for apprenticeship. These elements should improve the ability of educational and apprenticeship organizations to provide timely occupational and vocational guidance appropriate to the needs and interests of the person at all stages of life, especially through linking educational and training resources to the person's needs and to job opportunities in the labor market. Each of these factors contributes to the goal of achieving efficient utilization of educational resources in providing apprenticeship and vocational education training throughout the state.

5. Facilitate efficient use of labor market information for personal, educational and community planning. The initial tasks of forecasting demand and supply in the crafts and related occupations addresses only the quantitative element of planning with labor market information. Effective use of qualitative information for educational and community planning are requisites for better informed personal planning. Vocational education's role through the use of RAABs should address the application of labor market information to issues in development of curriculum, vocational planning of individuals, efficient design and use of facilities, and training teachers and other labor market intermediaries to reduce bias in communicating information about crafts and apprenticeship in comparison with occupations typically requiring college. Concepts of continuing education and multiple careers also are essential uses of labor market information which may be facilitated by regional advisory boards.

6. Link state-level agencies to produce the economic and educational environment which supports and encourages regional economic, employment and educational development. The purpose of this recommendation is to mobilize state public and private organizations to assist employers, unions, educators, employment and training resources and others concerned with vocational and apprenticeship training in the various regions through cooperation and collaboration at the state level. The Advisory Council for Adult, Vocational and Technical Education should consider taking a lead role in providing mutually beneficial

incentives to encourage a climate in which regional coordination and planning can occur. These tasks will enhance the quality of manpower resources, especially in the crafts and other high talent occupations. The council can mobilize public and legislative support of education and training as an economic necessity rather than as just a cost. Encouragement of planning and linkage at the regional level can provide a basis for attraction of employment opportunities to the state. Allocation of federal and state resources to help achieve regional and state objectives will offer mutual rewards for people and institutions in the crafts, in related objectives, in apprenticeship programs and in schools. Coordination at the state level also can provide support and resources to conduct research which leads to the improvement of training processes and content.

7. JAC and BAT, which are well regarded and perform useful functions in the apprenticeship system of Illinois, should be integral elements of Regional Apprenticeship Advisory Boards. BAT and JACs, along with other participants from employers and schools, community representatives and AIS/ES, should be encouraged to reach beyond issues of "turf" toward joint efforts to improve regional economic and educational resources. These mutually supportive roles can contribute significantly to manpower and economic growth needed to attract and retain both employment and people with skill and talent, but not at the expense of high-quality apprenticeship programs which already exist in the state.*

*Recent studies of the "turf" issue sponsored by the U.S. Department of Labor, HEW and Environmental Protection Agency have been conducted by a research team at Northwestern University's Graduate School of Management. Findings of these studies show that people at the grassroots levels often accomplished needed cooperation despite higher level bureaucratic bickering.

First-Year Cost of Starting Two RAABs

A. Centrally budgeted and supplied from DAVTE:

1. Computer time, collating, printout, comparisons, mailing lists, labor market surveys

2. Staff technical assistance regarding design and methodology for conducting surveys, interpretation, aid in developing RAABs

3. Clearinghouse of survey, economic and demographic data for RAAB planning (possible reallocation of resources)

4. Consulting assistance

B. Budgeted and supplied by RAABs:

| | | |
|---|---|---|
| 1. | Field staff: one professional for each two RAABs; clerical staff as needed, part-time in the beginning, increase as RAAB reaches full functioning | $43,750 |
| 2. | Travel for staff | 1,000 |
| 3. | Office space (with furniture): rent or sublet in area associated with manpower, economic development or educational agencies | 1,200 |
| 4. | Developmental and research funds: conduct regional labor market studies, RAAB-sponsored workshops, provide regional planning information and link to education, economic development and manpower data | 17,500* |
| 5. | RAAB meetings | 3,375 |
| 6. | Supplies: typewriters, copier, postage, telephone, general office supplies | 15,000** |
| | | $81,825 |

*The bulk of this cost will be entailed every other year: the major market study will be conducted every two years.

**Some items will not recur in subsequent years.

# BIBLIOGRAPHY

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Amex Systems, Inc. An Evaluation of the Pilot Accelerated Apprenticeship Project. Lawndale, Calif.: Amex Systems, Inc., 1974.

Describes and evaluates a preapprenticeship project established at a local high school with the cooperation of the carpenters union and the BAT. Students enrolled in the pilot training course receive credit toward graduation and toward completion of apprenticeship training.

Aun, Emil Michael. "Building Craftsmen from the Ground Up." Manpower, Vol. 4, No. 8, August 1972, pp. 22-28.

Describes a cooperative program between the Job Corps and five major unions -- bricklayers, carpenters, operating engineers, painters and plasterers. One or more of these unions are conducting training programs at each of the 30 Corps' Civilian Conservation Centers around the country. The programs, which include vocational education, counseling and skill training, have succeeded in placing 94% of the Corpsmen who complete training.

Barbash, Jack. "Union Interests in Apprenticeship and Other Training Forms." Journal of Human Resources, Vol. 3, No. 1, Winter 1968, pp. 63-85.

Union interests in training are shaped by an interplay of factors including union type (craft or industrial), level of union government (local, national or federation), scope of interest (sectional or social policy), employment status of trainees (prior to or concurrent with employment), means of asserting union interests (collective bargaining, unilateral action or legislative enactment) and, finally, the problems of the labor market and the economy.

Barnes, Clarence Harold. "Investigation of Intra-Firm Upward Mobility Among Selected Skilled Craftsmen." Dissertation. Knoxville, Tenn.: University of Tennessee, 1973.

Examines the variables influencing the upward mobility of skilled craftsmen within a firm. In particular, the study focuses on the experience of apprentice-trained craftsmen compared with the experience of craftsmen who received training or experience through other routes. The study is based on a sample of maintenance craftsmen employed by the TVA.

Barocci, Thomas A. "Apprentice Dropouts: Cause and Effect." Manpower, Vol. 5, No. 1, January 1973, pp. 9-13.

This article is based on the author's dissertation (see Barocci, 1972).

Barocci, Thomas A. "The Drop-Out and the Wisconsin Apprenticeship Program: A Descriptive Economic Analysis." Dissertation. Madison, Wis.: University of Wisconsin, 1972.

Reports the results of a mail survey questionnaire sent to a sample of drop-outs and completers who had been enrolled in Wisconsin apprenticeship programs between 1965 and 1970. Drop-outs and completers were compared through a descriptive analysis which isolated significant differences between the two groups and through a second analysis -- aided by three econometric models -- which allowed an examination of the influence of a varying number of factors affecting the completion rate and income of trainees. Includes a review of the literature on apprenticeship, emphasizing the Wisconsin apprenticeship system and the drop-out, and an extensive section on methodology describing the model which was developed to predict success in apprenticeship programs. Recommendations include: (1) support of a "modular training system" which would overcome training program rigidity by providing basic job skills in a year or two with advanced techniques and skills taught as separate modules for those who desire additional training, and (2) active recruitment of women and minority trainees with provision of supportive services for these groups during training.

Barocci, Thomas A. and Dan Vrana. "Wage Variations Among Former New York Apprentices." Proceedings of the 27th Annual Meeting of the Industrial Relations Research Association, December 27-28, 1974. Madison, Wis.: 1975.

Reports the results of a mail questionnaire survey to determine the factors affecting the behavior of wages and wage differentials in the skilled trades. Although journeyman status, occupational area and union membership were important factors, completion of apprenticeship was by no means the only route to journeyman status or to the higher wages earned by those who do complete apprenticeship training.

Beckman, Ann C. and Cathleen Quirk. Research in Apprenticeship Training, Proceedings of a Conference, Madison, Wisconsin, September 8-9, 1966. Madison, Wis.: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967. (ED018632)

Includes 10 papers on apprenticeship with discussions: Farber, D.J., "Apprenticeship in the United States, Labor Market Forces and Social Policy"; Jirikowic, V.E., "Apprenticeships and the American Labor Movement"; Drew, A.S., "The Pursuit of Excellence in Apprenticeship Training, Research, Procedures, Instruments, and Challenges"; Strauss, G., "Related Instruction, Basic Problems and Issues"; Filley, A.C., "A Study of Registered Joint Apprenticeship Committees in Wisconsin Building Trades"; Murphy, Hugh, "A Perspective on Apprenticeship Today"; McCauley, J.S., "Increasing Apprenticeship Opportunities through Preemployment Training"; Foltman, F.A., "National and State Apprenticeship 1960-1966, Up to Date or Out of Date"; Marshall, R., "Negro Participation in Apprenticeship Programs"; and Kovarsky, I., "The Negro Apprentice Training Programs, and Testing."

Brennan, Peter J. "Realizing Apprenticeship's Potential." Manpower, Vol. 6, No. 9, September 1974, pp. 2-7.

The Secretary of Labor outlines a number of approaches to improving the apprenticeship system including: redefining and broadening the base of apprenticeable occupations, developing apprenticeship preparatory courses in high schools to encourage training in the trades, broadening the base of participation by increasing the emphasis on apprenticeable occupations other than those in the building and construction trades, expanding the programs for periods of only three years, applying the results of research and demonstration projects, encouraging programs to register with the federal government, developing dual credit programs in colleges and strengthening the enforcement of equal opportunity in apprenticeship and training.

Briggs, Norma. "Women Apprentices: Removing the Barriers." Manpower, Vol. 6, No. 12, December 1974, pp. 2-8, 10-11.

A brief report of the findings of The Women in Wisconsin Apprenticeships Project (see annotation, Mapp 1973).

Briggs, Norma. Women in Apprenticeship -- Why Not? Manpower Research Monograph No. 33. Washington, D.C.: Government Printing Office, 1974.

A summary of the insights gained and the findings and recommendations of a Wisconsin State Department of Industry, Labor and Industrial Relations research and demonstration project (see annotation, Mapp 1973) to isolate, analyze and minimize the obstacles to women participating in apprenticeship training.

Briggs, Vernon M., Jr. and F. Ray Marshall. Negro Participation in Apprenticeship Programs. Austin, Tex.: University of Texas, December 1966. (ED015327)

Examines the issues involved in Negro apprenticeship, evaluates measures being taken to promote equal apprenticeship opportunity and makes recommendations for remedial action. The study is based on unstructured interviews with government, union and other officials and with Negro and white apprentices and applicants. It examines in detail the situation of Negro apprentices in 10 large American cities and reviews measures which have been taken to increase Negro participation. Recommends general and long-term policies to improve the quality of education for disadvantaged youth and to maintain full employment and economic growth, and manpower policies concentrating on specialized programs to overcome educational disadvantagement and to prepare the disadvantaged for apprenticeship and other training programs. The report also recommends: (1) that municipal governments play a primary role in increasing the number of Negro apprentices, especially in the construction industry, (2) that federal authorities encourage the development of voluntary non-discrimination programs by unions and employers, (3) that apprenticeship information centers be strengthened, and (4) that guidelines be developed to determine the legality of testing procedures.

"Building New Carpenters." Manpower, Vol. 3, No. 10, October 1971, pp. 13-18.

Describes a National Association of Home Builders program of preapprenticeship and apprenticeship entry training in carpentry. Trainees, who are recruited by the state employment services and through newspaper ads, are enrolled in one of the 123 programs run by the local affiliate of the NAHB in 45 communities. The programs are run by a full-time coordinator who is usually a journeyman carpenter and include six weeks of full-time instruction followed by 16 weeks of on-the-job training. Upon completion of training, enrollees become registered apprentices.

California State Department of Education, Bureau of Industrial Education. Apprenticeship Handbook for Educators. Sacramento, Calif.: 1974.

Ten chapters provide information on all aspects of apprenticeship: (1) Why Apprenticeship, (2) Legislation for Apprenticeship, (3) Administrative Organizations, (4) Apprenticeship Committees, (5) The Local Apprenticeship Program, (6) Operation of Apprenticeship Classes, (7) Selection of Apprentices, (8) Selection of Teachers and Coordinators, (9) Industry's Role in Apprenticeship, and (10) Public Relations for the School Program. Appendices include many documents of particular interest to California educators.

Cassell, Frank H. and Jean J. Baron. "The Black Coalition anf the Chicago Construction Industry." In: Frank H. Cassell and Jean J. Baron, Collective Bargaining in the Public Sector. Columbus, Ohio: GRID, Inc., 1975, pp. 287-377.

Case study of the development of the Chicago Plan, a voluntary plan to increase the number of minorities in the construction industry. The case focuses on the roles played by the unions, the construction industry, and the Coalition for United Community Action, a group representing many black neighborhoods in Chicago which launched a dramatic campaign in 1969 for jobs and training programs for blacks.

Colorado State General Assembly, Legislative Council. Vocational Education in Colorado. Legislative Council Report to the General Assembly. Denver: 1966. (ED016819)

This inventory of vocational education in Colorado assesses the strengths and weaknesses of the system and provides a number of recommendations for legislative action including expansion of the apprenticeship program.

Comer, Roger A. and Herbert J. Lahne. Admission and Apprenticeship in the Building Trades Unions. Washington, D.C.: Government Printing Office, April 1971. (ED072233)

Examines journeyman admission policies in 17 national craft unions and 98 locals through examination of national and local constitutions, standards developed with the assistance of the BAT, and civil rights court cases to determine the impact of each on minority participation. Concludes that although national unions have a great deal of control over local practices regarding admission qualifications for journeymen, local unions have more autonomy in establishing qualifications for apprenticeship. Provides comparative data on admission requirements.

Committee on Administration of Training Programs. Report of the Committee on Administration of Training Programs. Washington, D.C.: 1968. (ED027406)

Examines approximately 30 federally supported job training programs and concludes that although some waste, inefficiency and duplication exist, the programs are nevertheless effective. Recommends that: national manpower policy be codified; individuals receiving welfare benefits receive training without penalty; apprenticeship programs be expanded; the number of minority apprentices be increased; training be geared to jobs with opportunity for advancement and adequate income; residential vocational education centers be established; there be more adequate funding of program activities; and training activities be integrated with the Department of Labor.

"Copperweld Training Program Provides Employee Opportunity." Training and Development Journal, Vol. 29, No. 8, August 1975, pp. 8-9.

Describes a formal apprenticeship training program implemented by the Copperweld Steel Company (Warren, Ohio) in 1965. The program combines on-the-job training with independent study courses provided by the ICS Training for Business and Industry Division.

"A Degree and a Union Card." Technical Education Reporter, Vol. 1, No. 1, May 1974, p. 78.

Describes a dual enrollment program through which students receive operating engineer apprentice training (while working for wages) at the same time as they receive credits toward associate degrees at participating colleges.

Derryck, Dennis A. Improving the Retention Rate of Indentured Apprentices Placed by Apprenticeship Outreach Programs. Waltham, Mass: Brandeis University, May 1973.

Data gathered from interviews with active and inactive minority apprentices, joint apprenticeship coordinators and staffs of apprentice outreach programs in four cities reveal that a number of factors discourage minority apprentices from remaining in training programs: racial discrimination, industry customs and traditions, inadequate wages and especially the absence of structured retention policies. Outreach programs must be active advocates for the apprentice, soliciting feedback information from apprentices and working closely with government enforcement agencies.

District of Columbia Employment Service. Start Your Career with Apprenticeship in Washington, D.C. Washington, D.C.: District of Columbia Employment Service, January 1966. (ED016126)

This guide describes 21 apprenticeable trades in terms of nature of work, tools used, working conditions, geographic area and place of employment, useful high school courses, employment outlook and places to apply. Step-by-step guidelines are provided for the young person interested in becoming an apprentice.

Doyle, Lawrence F. "An Evaluation of Apprenticeship -- Growth or Stagnation; A Frank Discussion of Government, Union, and Industry Roles." Training and Development Journal, Vol. 21, No. 10, October 1967, pp. 2-12.

Union maintenance of strict journeyman-apprentice ratios and restrictive selection policies perpetuates skill shortages. Present apprenticeship training programs stifle incentive through rigid man-hour requirements for each step of training, wages which fail to reward outstanding performance and restriction of activities within the job. The apprenticeship training system must be revitalized to remedy these problems.

Drew, Alfred S. Educational and Training Adjustments in Selected Apprenticeable Trades. 2 vols. Lafayette, Ind.: Purdue Research Foundation, November 1969.

Based on questionnaires and extensive interviews with apprentices and journeymen, employers and union officials, instructors and training coordinators, teachers and counselors and high school students, this study questions the philosophy and administration of apprenticeship, recruitment and training practices, period of indenture and adjustment to changes in technology.

Drewes , D. W. and Douglas S. Katz. Manpower Data and Vocational Education: A National Study of Availability and Use. Raleigh, N.C.: Center for Occupational Education, North Carolina State University, 1975.

Based on interviews with regional, state and local personnel in both data-producing agencies and vocational education agencies in ten states, this study examines the current state of affairs with respect to the availability and use of manpower data in state vocational education agencies, local vocational education agencies, and employment security agencies and describes the roles of the USOE, BLS and Manpower Administration regional offices. Five factors believed to be central to an understanding of the observed conditions are examined: (1) student demand - manpower requirements, (2) personal knowledge - processed knowledge, (3) local autonomy - state centrality, (4) agency isolation - agency cooperation, and (5) revenue sharing - categorical funding. A listing of exemplary practices at the state and local levels is provided. The report concludes with specific recommendations for action by the Congress, the Commissioner of Education, the Commissioner of Labor Statistics, and the Assistant Secretary of Labor for Manpower.

"The Dropout and the Wisconsin Apprenticeship Program: A Descriptive and Econometric Analysis." In: Abstracts of Seven Doctoral Dissertations Completed Under Manpower Administration Research Grants. Manpower Research Monograph No. 34. Washington, D.C.: Government Printing Office, 1975, pp. 3-10.

Brief abstract of a doctoral dissertation (see annotation, Barocci, 1972) in 7 sections: (1) introduction, (2) the Wisconsin program, (3) methodology, (4) the descriptive analysis, (5) the econometric analysis, (6) conclusions and policy recommendations, and (7) appendix: econometric analyses models.

Dufty, Norman F. "Apprenticeship -- A Theoretical Model." British Journal of Industrial Relations, Vol. 5, No. 1, March 1967, pp. 87-90.

This article, based on an examination of apprentice recruitment in Western Australia, offers a mathematical model of apprenticeship and employment which can be applied to any economic area. Lack of correlation between the number of apprentices and the level of industrial employment can result in inadequate training, chronic shortages of apprentices in particular occuparions and inadequate recruitment. The model makes apparent the desirability of an apprenticeship system which can respond more flexibly to industry demand. This might be accomplished by developing a program of instruction for the first part of apprenticeship which is common to a number of trades, or by indenturing apprentices to boards rather than to individual employers.

Dufty, Norman F., ed. Essays on Apprenticeship. Madison, Wis.: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967.

Includes seven essays: Strauss, George, "Apprenticeship: An Evaluation of the Need"; Barbash, Jack, "Union Interest in Apprenticeship and Other Training Forms"; Magnuson, Karl O., "A Survey of Wisconsin Building Trades Joint Apprenticeship Committees"; Crabtree, James S., "The Structure of Related Instruction in Wisconsin Apprenticeship Programs"; Dufty, Norman, "Apprenticeship -- A Theoretical Model"; Dufty, Norman, "Recruitment to the Skilled Trades: A Study of a Segment of a Skilled Labor Market"; and Dufty, Norman, "A Model of Choice in Labor Markets."

Dunlop, John T. and D. Q. Mills. Manpower Development and Utilization in the Contract Construction Industry. Cambridge, Mass.: Harvard University, 1972.

Examines the "boom-or-bust" problem in the construction industry which results from fluctuations in labor demand varying with the seasons and with the level of construction activity. Study findings underscore the need for better manpower planning, increased recruitment and participation of minority workers and improved apprenticeship and training programs. Specific public policy recommendations are included.

Eddy, Max and J. P. Corcoran. "A Trade Union Sponsored Scheme." Training Progress, Vol. 8, No. 2-3, 1969, pp. 4-11.

Describes a Purdue University Department of Industrial Engineering training program for apprentice instructors which was developed and is conducted with the cooperation of the Plumbers and Pipefitters Union.

Fairleigh Dickinson University. Apprenticeship Training in New Jersey. Rutherford, N.J.: June 1973. (ED080812)

In four parts: (1) general overview of apprenticeship training, (2) apprenticeship in New Jersey, focusing on administration and trends in apprenticeship training, (3) survey of apprentices and apprenticeship programs in New Jersey, and (4) findings, conclusions and recommendations. Offers 12 major recommendations covering the administration, the advisory council, the state apprenticeship representatives, counseling, supporting services, recruitment, subsidization, related education, minority participation, program entry requirements and apprenticeship information.

Farber, David. "Apprenticeship in a Changing Economy." Manpower, Vol. 7, No. 9, September 1975, pp. 31-33.

Reviews the evidence that labor market fluctuations have an impact on apprenticeship and examines the need for development of policies to encourage employers to begin or maintain apprenticeship programs during slack economic periods. The federal government might intervene indirectly through countercyclical spending or by restructuring the annual wage provisions of the Fair Labor Standards Act or directly through subsidization of apprenticeship costs.

Fasser, Paul J., Jr. "Unions and Manpower: A Natural Partnership." Manpower, Vol. 4, No. 8, August 1972, pp. 2-5.

Describes the growth of union sponsorship of and participation in manpower training programs emphasizing training of minority and other disadvantaged youth. Highlights union participation in the Job Opportunities in the Business Sector (JOBS) Program, the Manpower Training and Development Act (MDTA) Program, the Apprenticeship Outreach Program and the AFL-CIO activity in the Appalachian Council and the Human Resources Development Institute (HRDI).

Foltman, Felician A., ed. Apprenticeship Training in the 1970's: Report of a Conference, Washington, D.C., May 30-June 1, 1973. Manpower Research Monograph No. 37. Washington, D.C.: Government Printing Office, 1974. (ED113523)

Summaries of 19 papers dealing with fundamental problems in apprenticeship and skill training in the U.S.: Strauss, George, "Alternative Approaches in Improving Apprenticeship Effectiveness"; Oriel, Arthur, "Development of a Performance Based Individualized System for Technical and Apprentice Training"; Somers, Gerald, "Related Instruction: Is It Related?"; Foster, Howard, "Training in the Homebuilding Industry"; Hammond, Reese, "A Trade Union Perspective on Apprenticeship Research"; Pearce, C.A., "A Followup Survey of Apprenticeship Completers and Dropouts in New York State, 1958-1969"; Barocci, Thomas, "Summary and Policy Implications of a Survey of Former Apprentices in Wisconsin"; Schramm, Carl, "Occupational Mobility and Rates of Return Connected with Apprenticeship Training"; Marshall, Ray, Formal and Informal Training of Selected Construction Craft Workers"; Derryck, Dennis, "Retention of Minorities in Apprenticeship: The Nature of the

Issue"; Green, Ernest, "RTP -- A Model for Apprenticeship Training"; Johnson, Napoleon B. III, "Research Issues and Problems in the Apprenticeship System"; Schneider, Stephen A., "Minority Improvement in Apprenticeship Participation in Construction Trades"; Rowan, Richard, "Alternative Routes to Skill: Voluntary Programs in the Construction Industry"; Nye, Charles and Norma Briggs, "Women in Apprenticeship -- A Research Project"; Rosenthal, Neal, "Report on a Pilot Survey of Training in Industry"; Markowitz, Edwin A., "A Computerized Labor Market Information System and Its Place in the Construction Industry"; Roomkin, Myron, "Lessons from Europe." A summary chapter by conference director Felician A. Foltman, "Implications for Action," describes the fundamental principles underlying a model apprenticeship system and sets forth recommendations concerning administration and practice, quality of instruction, entrance of minorities into apprenticeship, and data requirements for developing model systems.

"Foreign Apprenticeship Practices: Ripe for Import?" Manpower, Vol. 6, No. 6, June 1974, pp. 11-14.

An article based on the study Improving Apprenticeship: A Pilot Study of Employer and Union Reactions to Foreign Training Practices (see annotation, Roomkin 1973).

Foster, Howard G. "Apprenticeship Training in the Building Trades: A Sympathetic Assessment." Labor Law Journal, Vol. 22, No. 1, January 1971, pp. 3-12.

This paper, based on the author's dissertation (see annotation, Foster 1969), concludes that the apprenticeship system in the building trades has performed better than its critics have allowed. The system has proven itself flexible: the length of certain programs has been reduced when the circumstances dictated it, admission standards have been changed when the supply of applicants required it and, most important, the number of apprentices has responded to changes in economic conditions.

Foster, Howard G. "Labor Supply in the Construction Industry: A Case Study of Upstate New York." Dissertation. Ithaca, N.Y.: Cornell University, 1969.

Based on a questionnaire survey of about 800 construction craftsmen and on interviews with about 70 representatives of the industry, this study describes, analyzes and evaluates paths of entry to the trades and short-term (seasonal) and long-term (year-to-year) labor force adjustments. Major findings of the study were: that most workers enter the construction industry with little or no prior preparation and acquire their skills informally through participating in the production process; that when jobs are plentiful, unions do not resist the employment of non-members, nor are they restrictive in admitting workers to membership; and that a substantial proportion of seasonal entrants are retained in the permanent work force. Concludes with a series of policy recommendations and some suggestions for further research.

Foster, Howard G. "Nonapprentice Sources of Training in Construction." Monthly Labor Review, Vol. 93, No. 2, February 1970, pp. 21-26.

This article, based on the author's dissertation (see annotation, Foster 1969), examines alternative sources of manpower for the building trades and their relative significance for particular crafts. Data presented were gathered from interviews with persons familiar with the construction industry and from questionnaires sent to workers in four important crafts -- bricklayers, carpenters, electricians, and operating engineers. Examines training in construction and other industries, vocational training in schools, training in the military, and training by friends and relatives, and finds that skills are often acquired through informal training within and outside the industry.

Franklin, William S. "An Analysis of Traditional Routes of Entry Into Selected Construction Unions." Dissertation. Austin, Tex.: University of Texas, 1972.

Interviews with union officials, construction industry representatives and other knowledgeable parties in New York, Atlanta and Austin, Texas, revealed that workers are referred to unions in four ways -- through the apprenticeship system, through direct admission, through transfer from other locals and through extension of working permits to non-members. Each method of entry serves the labor market in different ways. In general, apprenticeship graduates made up a higher percentage of the work force than did unions members as a whole and worked more than informally trained craftsmen. Recommends that minorities continue to seek entrance through apprenticeship at the same time as they make the fullest possible use of other methods of entry. In addition, apprenticeship outreach programs should be a high public policy priority. Unions selected for the study were: bricklayers, carpenters, electrical workers, ironworkers, plumbers and steamfitters, and sheet metal workers.

Franklin, William S. "A Comparison of Formally and Informally Trained Journeymen in Construction." Industrial and Labor Relations Review, Vol. 26, No. 4, July 1973, pp. 1086-1094.

This paper, based on analyses of pension and welfare-fund records in six crafts in six cities, finds that journeymen with apprenticeship training suffer less unemployment, on the average, and are more likely to become supervisors than are journeymen who are informally trained.

Franklin, William S. "Minority Membership in Apprentice Programs: Comment." Industrial and Labor Relations Review, Vol. 26, No. 1, October, 1972, pp. 699-701. Reply by Alex Maurizi, pp. 701-705.

This comment on an earlier article in the same journal (see annotation, Maurizi, 1972) questions the way data were used by the author to show a relationship between length of training and minority participation rates. The author also examines a number of factors relevant to career selection by minorities as well as a number of characteristics of the construction labor market which were not considered by Maurizi and which put the validity of his model in question.

Glover, Robert W. "Apprenticeship in America: An Assessment." Proceedings of the 27th Annual Meeting of the Industrial Relations Research Association, December 27-28, 1974. Madison, Wisc.: 1975, pp. 64-70.

Discusses the results of a study of union-employer sponsored apprenticeship programs in the construction trades (See annotation, Glover, April 1975) and points out the limitations of national, state and local apprenticeship data. Public misunderstanding and lack of appreciation of the apprenticeship system is in large part of result of inadequate documentation of its achievements, particularly in such controversial areas as minority participation.

Glover, Robert W. "Breadth of Training in Apprenticeship." Monthly Labor Review, Vol. 98, No. 5, May 1975, pp. 46-47.

Adaptation of "Apprenticeship in America: An Assessment" (See annotation, Glover 1975).

Glover, Robert W. Fostering Minority Enterprise in Construction. Austin, Texas: Center for the Study of Human Resources, University of Texas, April 1975.

Report of a study of minority enterprise in construction based on interviews with general and specialty contractors in four cities -- Atlanta, Houston, Chicago and San Francisco-Oakland -- and with civil rights officials and other knowledgeable individuals. Examines the characteristics of existing minority contractors and their firms and analyzes the problems they must deal with in upgrading their businesses. Also reviews alternative strategies which might be used to improve and expand minority business enterprise in construction: the delivery of bonding and financial help, managerial and technical help and labor training; the identification of minority firms in published listings to stimulate demand; directing procurement of Government and Government contractors at minority firms; and stimulating demand and developing supply through the joint venture and the minority contractor association. There is also a need for improved data-gathering on minority contractor associations as well as better monitoring and evaluation procedures by funding agencies. Includes 66 tables of interview and descriptive data.

Grabe, Sven. "Secondary Education, Training and Employment: An Historical Interpretation." Prospects, Vol. 3, No. 3, Autumn 1973, pp. 327-332.

Analyzes the apprenticeship system and the system of vocational and technical education in terms of their relationship to employment, their historical development and the problems each has as a result of blurring of objectives and a confusion of goals.

Hammerman, Herbert. "Minorities in Construction Referral Unions -- Revisited." Monthly Labor Review, Vol. 96, No. 5, May 1973, pp. 43-46.

Based on 1969 data gathered by the EEOC, the author finds that minority groups are poorly represented in construction referral unions and that a substantial proportion of locals had no minority members. Where minorities were members, they were concentrated in 4 of the 16 internationals that make up the building trades group. Includes data.

Hansen, Gary B. and Mark D. Randle. Dropouts and Completers in the Utah Apprenticeship System, 1969-1974: Some Causes and Consequences. Logan, Utah: Manpower Development Service, September 1975.

The report recommends that preapprenticeship programs be established in high schools with credit given for graduation and for completion of apprenticeship; that on-the-job rotation be improved by indenturing apprentices to a group of employers or a trade asociation; that basic training be shortened, perhaps through a modular approach to training for different levels of competence; that journeyman upgrading programs be established; and that uniform quality curricula be established for independent programs.

Hill, Herbert. "Evading the Law: Apprenticeship Outreach and Hometown Plans in the Construction Industry." Civil Rights Digest, Vol. 6, No. 4, Summer 1974, pp. 3-17.

Article based on the study Labor Union Control of Job Training (See annotation, Hill 1974).

Hill, Herbert. Labor Union Control of Job Training: A Critical Analysis of Apprenticeship Outreach Programs and The Hometown Plans. IUAR Occasional Paper Vol. 2, No. 1. Washington, D.C.: Institute for Urban Affairs and Research, Howard University, 1974.

Concludes that programs based on voluntary compliance have failed to change the status of minorities in the building trades. These programs provide only temporary and symbolic gratification for blacks while allowing employers and unions to use them to prevent enforcement of civil rights laws and excecutive orders. Independent community organizations must create alternative routes for jobs and training in the construction industry while continuing litigation to obtain compliance with the law.

Hordman, William E. et al. A Study of Accelerated On-the-Job Training Program for the First Year of On-the-Job Training for the Precision Machinist Apprentice. Oxon Hill, Md.: National Tool, Die and Precision Machining Association, November 1973. (EDO86801)

Reports the results of a study comparing apprentices in a typical training program with apprentices in a newly designed programed course of instruction. Concludes that the time necessary to acquire and demonstrate competence for selected tasks is shorter than the time recommended in present standards developed in cooperation with the BAT.

Kalamazoo Public Schools, Apprenticeship Study Committee. Minority Participation in Kalamazoo's Apprenticeship Training Programs: Assessments and Recommendations. Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, December 1970. (ED 062626)

This report, which focuses primarily on apprenticeship programs for which the Kalamazoo school system provides related instruction, describes the system of apprenticeship training in Kalamazoo and the entry requirements and selection procedures of local programs. The report details the barriers to increased minority participation and makes a number of specific recommendations for business and industry, for unions, for joint apprenticeship committees, and for schools. The report endorses the Area Construction Trades Affirmative Action Committee (ACT-AAC) program which was developed locally by interested parties without pressure or influence from outside the community. This program was initiated to provide recruitment, screening and orientation of trainees, preliminary training before on-site construction, job related education, skill training, counseling and placement. Finally, it is suggested that the Kalamazoo Public Schools give consideration to awarding contracts to those employers who do hire minority workers.

Lipsky, David B. and Joseph B. Rose. "Craft Entry for Minorities: The Case of Project JUSTICE." Industrial Relations, Vol. 10, No. 3, October 1971, pp. 327-337.

Describes Project JUSTICE (Journeymen Under Specific Training in Construction Employment), a minority training program which provides classroom instruction and on-the-job training leading directly to journeyman status. Examination of the factors related to success of JUSTICE trainees (those who gained entry to the trades versus dropouts and trainees not permitted to take the journeyman's exam) reveals very little relationship between a trainee's education, training and past work experience and his chance of becoming a construction journeyman.

Lucas, Darrell. "Apprenticeship: Head Start in High School." Manpower, Vol. 6, No. 11, November 1974, pp. 13-16.

Describes the Career Development Program, an apprenticeship training program of the District of Columbia Public Schools in cooperation with the local Joint Carpentry Apprenticeship Committee. Students enrolled in the program receive credit toward journeyman status at the same time as they receive credit toward high school graduation.

Mapp, Patricia. Women in Apprenticeship--Why Not? Madison, Wisc.: Division of Apprenticeship and Training, Department of Industry, Labor and Human Relations, State of Wisconsin, August 1973. (ED086880)

Reports the results of a research and demonstration project whose primary objective was to make the entrance of women into skilled apprenticeable trades more effective and normal. Direct results of the project included the initiation of changes in the state employment and apprenticeship agencies to eliminate sex stereotyping and the development of new apprenticeship programs in day care and health occupations. The project conducted a series of employer and employee interviews to point the way to recommendations and remedial action. Final recommendations are: (1) that apprenticeship outreach porgrams be sponsored to encourage women; (2) that equal opportunity laws be actively enforced; (3) that the women's jobs code in the Directionary of Occupational Titles be reassessed; (4) that schools open preapprenticeship classes to girls; and (5) that unions and employers waive collective bargaining agreements as they exclude women from apprenticeship positions.

Marshall, Ray et al. A Comparison of Union Construction Workers Who Have Achieved Journeyman Status Through Apprenticeship and Other Means. Austin, Tex.: Center for the Study of Human Resources, University of Texas, December 1973. (ED091579)

Presents data collected from fringe benefit records and from extensive interviews with journeymen, contractors, union officials and others with knowledge of the construction industry to determine the influence of apprenticeship on employment, earnings and advancement. Six trades in 9 cities were studied. In general, apprenticeship graduates tend to work more, earn more and advance more quickly to supervisory positions. Informally trained craftsmen were found to make up a substantial portion of the work force in the construction industry, with most entering the trades through open shops, vocational schools, the military, and through work experience as laborers or helpers on construction jobs. The report makes a number of recommendations relating to journeyman upgrading, nonunion training, minority participation, employment guarantees, national craft standards and appeals mechanisms, negative craft stereotypes, record keeping, government financial support and enforcement of antidiscrimination laws.

Marshall, Ray and Vernon M. Briggs. Equal Apprenticeship Opportunities: The Nature of the Issue and the New York Experience." Policy Paper in Human Resources and Industrial Relations No. 10. Ann Arbor: Institute of Labor and Industrial Relations, University of Michigan, 1968.

Outlines the genral nature of the U.S. apprenticeship system and discusses the reasons for low participation of Negroes in these programs in the past. Presents background findings on apprenticeship in New York and focuses on the experience of the Workers Defense League, a human rights organization which moved into the apprenticeship area in 1963. The WDL program is characterized by active recruitment of minority youth, establishment of liaison with local schools, sponsoring conferences, conducting "prepping sessions" for recruits, establishing rapport with federal and state apprenticeship officials and with local joint apprenticeship committees, assisting

applicants in procuring necessary credentials and providing whatever support services are required during apprenticeship. Efforts to expand the WDL program in New York and and elsewhere have begun to produce results which support the belief that the outreach program is an effective way to get Negroes into positions from which they have been excluded and that such a program leads to measures which can result in significant institutional changes in racial employment patterns.

Marshall, Ray. "The Impact of Civil Rights Laws on Collective Bargaining in the Construction Industry." Poverty and Human Resources Abstracts, Vol. 5, No. 1, January-February 1970, pp. 4-17.

Reviews a number of court decisions on the remedies for discrimination and concludes that the impact of civil rights legislation on the construction industry has been extremely limited. This is due in part to limitations of legal procedure such as lack of finances and inadequate powers of enforcement of the EEOC, and in greater part to the slow evolution of law and legal principles. Although legal procedures are well suited to combating overt discrimination they are ill suited to changing institutionalized patterns of discrimination. Though legal procedures may lower racial barriers, they do not ensure a supply of qualified workers to take advantage of the opportunities opened up. The author concludes that though legal procedures are necessary they are not sufficient instruments in themselves to change racial employment patterns.

Marshall, Ray and Vernon M. Briggs, Jr. The Negro and Apprenticeship. Baltimore, Md.: The Johns Hopkins Press, 1967.

This book is based on an earlier report, Negro Participation in Apprenticeship Programs (See annotation, Briggs and Marshall 1966).

Marshall, Ray et al. "Paths to Construction Journeyman." Manpower, Vol. 6, No. 9, September 1974, pp. 8-13.

An article based on the study Training and Entry into Union Construction (See annotation, Marshall 1975).

Marshall, Ray and Vernon M. Briggs, Jr. "Remedies for Discrimination in Apprenticeship Programs." Industrial Relations, Vol. 6, No. 3, May 1967, pp. 303-320.

Reviews the effectiveness of various remedial measures developed in response to the notable absence of blacks in the building, machinist and printing trades. Examines federal and state apprenticeship regulations, the Civil Rights Act of 1964, the role of the NLRB, state and local regulations and fair employment practices commissions, apprenticeship information centers, preapprenticeship programs, MDTA programs and the Workers Defense League. Based on the findings of an earlier report (See annotation, Briggs and Marshall 1966).

Marshall, Ray, et al. Training and Entry into Union Construction. Manpower R&D Monograph 39. Washington, D.C.: Government Printing Office, 1975. (ED117379)

An investigation of entry into various basic construction trades including bricklayers, carpenters, electrical workers, jronworkers, plumbers and steamfitters, and sheet metal workers. Separate chapters are devoted to: background information on the construction industry, building trades unions to admit craftsmen to journeyman status; comparison of non-apprenticed workers with apprenticeship graduates; and documentation of labor market experience of apprenticeship-trained workers and other journeyman. In general, the study provides strong evidence that apprenticeship training provides considerable advantage over informal training. Includes 66 tables of descriptive and comparative data.

Mills, Daniel Quinn. "The Numerical Adequacy of Apprenticeship Programs." In: Daniel Quinn Mills, Industrial Relations and Manpower in Construction. Cambridge, Mass.: MIT Press, 1972, pp. 213-241.

Examines the role of apprenticeship in training for construction, the quality of data, the ratio of apprentices to journeymen, apprenticeship adequacy rates, apprenticeship volume and national economic forces, adjustments in the volume of apprentices in several crafts, methods of increasing the number of apprentices, the role of employers in apprenticeship and the length of apprenticeship.

Myers, Robin and Thomas R. Brooks. Black Builders, A Job Program That Works. New York: League for Industrial Democracy, 1970.

Describes the development and operation of the Joint Apprenticeship Program of the Workers' Defense League and the A. Philip Randolph Education Fund which has placed over 600 minority workers in a variety of apprenticeship programs.

New York State Department of Labor and New York State Education Department. Registered Apprenticeship Training in New York State; A Joint Report. Albany, N.Y.: May 1972. (ED070834)

In 3 parts: (1) the nature of apprenticeship, (2) the administration of apprenticeship (including legislative background and governmental functions in apprenticeship at the state and local levels), and (3) the extent of apprenticeship (including apprentice and program data and data on related instruction).

Olympus Research Corporation. A Pilot Study of the Apprenticeship System. 2 vols. Salt Lake City, Utah and San Francisco, Calif.: Olympus Research Corporation, 1975.

Reports the results of a study to determine whether a national survey of apprenticeship practices could be conducted at reasonable cost and produce useful and generalizeable results. A pilot test study, including both a mail survey and case studies of selected programs, was conducted in California and Rhode Island. Problems encountered included lack of union cooperation, major delays in probing responses at the local level, and scattered and highly inaccurate records. Concludes in general that a national study is not feasible;

although a statistically valid study might be made, it could not be done without great cost. Information at a reasonable cost can best be obtained by case studies, even though their representativeness can not be determined.

"The Philadelphia Plan vs. The Chicago Plan: Alternative Approaches for Integrating the Construction Industry." Northwestern University Law Review, Vol. 65, No. 4, September-October 1970, pp. 642-670.

The Philadelphia Plan is an imposed plan affecting construction projects which exceed $500 thousand and involve federal funds. The Chicago Plan is a voluntary plan which affects both public and private construction projects and has no minimum dollar limit. This comment examines the events which led to the formation of the plans and describes the provisions and limitations of each.

Rajan, G. Soundara. A Study of the Registered Apprenticeship Program in Wisconsin. Madison, Wisc.: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966.

An attitude survey of apprentices, drop-outs and employers in building, metal and other trades in Wisconsin revealed: (1) that apprentices feel the need for improved training, instruction and wages, (2) that drop-outs did not complete training mainly because of working conditions, layoffs and low wages, and (3) that employers feel that their participation in apprenticeship is hindered by unfavorable business conditions, high costs and union interference. The author calls for evaluations of the Wisconsin apprenticeship program based on worker development, employer participation, drop-outs and protection of minors. Recommends that the Wisconsin apprenticeship program objectives be restated in terms of a national manpower policy and that the Wisconsin Apprenticeship Division develop cooperative programs with other agencies. Includes suggestions for further research.

Reitz, Richard C. "Apprenticeship Program." Community and Junior College Journal, Vol. 44, No. 5, February 1974, pp. 41.

Briefly describes the Apprenticeship Plant Maintenance Mechanics Program, a cooperative venture of the Pacific Power and Light Company, union local 127 of the Utility Workers of America and Casper College, the largest community college in Wyoming. The company provides the instructor and instructional aids, and the union sets the standards by which apprentices may become journeymen.

Riendeau, Albert J. The Role of the Advisory Committee in Occupational Education in the Junior College. Washington, D.C.: American Association of Junior Colleges, 1967. (ED017266)

A guide intended for persons charged with the responsibility for developing and maintaining occupational education programs at the junior college level. In several parts: (1) determining occupational education in a rapidly changing society, (2) the nature and objectives of post-secondary education (3) community involvement with the college occupational educational program, (4) advisory committees and their functions, (5) the advisory committee meeting, (6) implementing advisory committee recommendations, and (7) expectations of advisory committee members.

Roberts, Markley. "Pre-apprenticeship Training for Disadvantaged Youth: A Cost-Benefit Study of Training by Project Build in Washington, D.C." Dissertation. Washington, D.C.: American University, 1970.

Interviews with 195 Negro applicants to the Project Build pre-apprenticeship training program (110 completers, 20 drop-outs, 65 non-selected applicants), produced a variety of data on employment and earnings for a test group of youths who got pre-apprenticeship training and for a control group who did not get such training. The test group performed significantly better than the control group on measures of post-training employment, post-training average hourly and weekly earnings and first year average net earnings. Multiple regression analysis on 14 socioeconomic and training variables indicated that training status was a highly significant variable. The first year cost-benefit ratio for training program graduates ranged from 0.33 to 0.36.

Rodgers, Ronald C., Frank H. Cassell, Charles T. Kerchner and Leslie Nathanson. Educational Planning in the Labor Market: Linking Occupational Education to Regional Economic Development, Vol. 1, Evanston, Ill.: Northwestern University, June 1976.

Examines the relationship of the school to the labor market using vocational education as an economic resource for community development. The report provides a conceptual foundation for the role of education in the labor market, regionalization of planning in response to employment opportunities, and methods of organizing and operating planning councils. The report also describes an inexpensive methodology for gathering and using local and regional labor market information from employers, and proposes state, regional and local strategies for applying the framework of education as an economic resource in community development.

Rodgers, Ronald C., Frank H. Cassell, Charles T. Kerchner and Leslie Nathanson. Educational Planning in the Labor Market: Employer Survey Directory and Resource Manual, Vol. 2, Evanston, Ill.: Northwestern University, June, 1976.

A companion to Vol. 1 which includes data and a directory from the employer survey described in the first volume, plus references and information about materials and services helpful in planning and operating vocational education and training programs.

Roomkin, Myron and Gary B. Hansen. "Implications of Foreign Training Practices for American Apprenticeship." Proceedings of the 27th Annual Meeting of the Industrial Relations Research Association, December 27-28, 1974. Madison, Wisc.: 1975.

A brief summary of foreign training practices which suggest options for the American system including: coordination of apprenticeship with other manpower policies and improved integration of vocational and regular education, the development of structures to facilitate government involvement in program administration, emphasis on a more gradual transition from school to work, commitment to training arrangements with close monitoring from school to work, commitment to training arrangements with close monitoring and clear lines of accountability, development of national programs of research, introduction of modular training, development of training programs for adults, and greater involvement of the public through special training taxes.

Roomkin, Myron. Improving Apprenticeship: A Pilot Study of Employer and Union Reactions to Foreign Training Practices. Chicago: Graduate School of Business, University of Chicago, 1973.

Reports the results of a study of employer reactions (assessed through a mail questionnaire sent to firms in the Chicago area) and union reactions (gathered through personal interviews with local union officials) to foreign training practices and their application to the American apprenticeship system. Major findings indicate that three developments are of particular interest: (1) national legislation increasing the control of national governments over apprenticeship and other modes of vocational education, (2) the development of means to help employers meet the costs of practical and theoretical instructions, and (3) the practice of training apprentices in logical states rather than in one continuous training program. The report examines the factors which are responsible for the varied appeal of these innovative practices to American employers and recommends: (1) that the establishment of an apprentice wage subsidy project be given special priority, (2) that a skilled trades training center be established for structural trades in the Chicago area, and (3) that the Manpower Administration and the BAT, along with other agencies of government, should establish a national technical assistance and research program comparable to the consulting agencies which have been developed in Britain and Germany.

Roomkin, Myron. "Minority Membership in Apprenticeship Programs: Comment." Industrial and Labor Relations Review, Vol. 26, No. 1, October 1072, pp. 699-701. Reply by Alex Maurizi, pp. 701-705.

This comment on an earlier article in the same journal (See annotation, Maurizi 1972) asserts that the author has overstated the importance of program length as a determinant of minority participation by failing to account for other motivating economic factors -- particularly the level of future earnings. Roomkin presents an alternative regression analysis which controls for anticipated earnings and suggests that minority participation in apprenticeship programs may be more responsive to a change in the average hourly earnings of journeymen than to a comparable percentage change in the length of apprenticeship training programs.

Rothman, Julius F. "Organized Labor's Role in the Manpower Field." National Elementary Principal, Vol. 48, No. 6, May 1969, pp. 69-74.

The Associate Director of the AFL-CIO Department of Urban Affairs and President of the Human Resources Development Institute affirms that an essential element in the solution of the urban crisis revolves around how efficiently the disadvantaged can be recruited, trained and placed in good jobs at decent wages. He reviews the efforts of organized labor to help accomplish this goal in Apprenticeship Outreach Programs, training programs such as the MDTA-OJT program and the NAB-JOBS program, the Job Corps Program and the Human Resources Development Institute.

Somers, Gerald G. Innovations in Apprenticeship: The Feasibility of Establishing Demonstration Centers for Apprenticeship and Other Industrial Training. Final Report. Madison, Wisc.: Industrial Relations Research Center, University of Wisconsin, October 31, 1972.

This study concludes that the establishment of federally sponsored demonstration centers for apprenticeship and skill training is highly desirable. The study recommends eight priority areas of exploration for demonstration centers: (1) union-employer-government financing and administration of related instruction and hands-on training, (2) accelerated training, (3) updating and upgrading of journeyman skills, (4) bloc release for related instruction, (5) instruction in remote areas where classroom facilities are not currently available, (6) curriculum development, (7) projects to experiment with the composition of joint committees (JACs) and with the effects of union-management-federal financing on attendance at JAC meetings and on effectiveness of JAC deliberations, and (8) projects to meet affirmative action goals and other selected procedures to widen admission to apprenticeship programs. Includes descriptions of innovations in apprenticeship and skill training abroad and use of innovations, centers, experiments and projects in the U.S. apprenticeship system.

Somers, Gerald and Myron Roomkin. Training and Skill Acquisition: A Pilot Case Study. Madison, Wisc.: Manpower and Training Research Unit, affiliated with the Industrial Relations Research Unit and the Center for Studies in Vocational and Technical Education, University of Wisconsin, 1972.

Reports the results of a study to determine the training procedures, the sources, costs and benefits of skill acquisition, and the transferability of skills in the Gisholt Machine Company in Madison, Wisconsin. Concludes that within-company training made a greater contribution to earnings and advancement than prior training and, furthermore, that within-company training which combined on-the-job training taken separately. The greatest obstacle to a study of training is the dearth of official company records on worker training within the firm. Results of a mail survey questionnaire of company officials and employees made apparent the need for intensive personal interviews with both employers and employees to bolster the surveys and produce reliable data.

Strauss, George. "Apprentice: An Evaluation of the Need." In Arthur M. Ross, ed. Employment Policy and the Labor Market, Berkeley: University of California Press, 1965, pp. 299-332. Reprinted in Norman F. Dufty, ed. Essays on Apprenticeship, Madison: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967, pp. 2-35.

This examination of various facets of the alleged need for expanded apprenticeship training in the building trades concludes: (1) that only a small proportion of craftsmen in the building trades need be highly skilled, (2) that there are a number of routes other than apprenticeship through which potential journeymen can gain training, experience and the opportunity to enter a trade, (3) that the urgency of a vastly expanded apprenticeship program should not be exaggerated, even though apprentice training is desirable both for the individual who takes such training and for society in general, and (4) that there is little realistic likelihood of the program being expanded beyond its present size.

Strauss, George. "Minority Membership in Apprenticeship Programs in the Construction Trade: A comment." Reply by Alex Muarizi. Industrial and Labor Relations Review, Vol. 27, No. 1, October 1973, pp. 93-102.

This comment on an earlier article in the same journal (See annotation, Maurizi 1972) provides evidence to support the view that the length of apprenticeship has a much less significant relationship to the total number of apprentices than Maurizi suggests and, furthermore, that the length of apprenticeship plays a relatively minor role in determining minority participation in apprenticeship.

Strauss, George. "Union Policies Toward the Admission of Apprentices." In: Stanley M. Jacks, ed., Issues in Labor Policy. Cambridge, Mass.: The MIT press, 1971, pp. 71-108.

This report, based on interviews and observations in northern California and western New York, finds that apprenticeship selection policies do not substantially restrict entry and that substantial progress has been made in reducing favoritism and discrimination. Concludes that further progress may require some kind of temporary quota system.

Stuart, Stephen D. Exploratory Study to Analyze New Skill Content in Selected Occupations in Michigan and the Mechanism for Its Translation into Vocational Education Curricula. Columbus: Battelle Memorial Institute, Columbus Laboratories, May 31, 1972.

This study provides a general methodology for designing curricula which eliminate the discrepancies between the skills desired by employers and the skills acquired by students. Entry-level skill requirements in 10 occupations were compared with skills produced by vocational education programs in 3 Michigan communities; results of the comparisons were used to reduce the discrepancies. Detailed task analyses and curriculum reviews of training are provided for a number of occupations including automobile engine mechanic, construction carpenter, construction electrician, and numerically controlled machine operator.

Swanson, Stephen M. et al. The Role of Related Instruction in Apprenticeship Training: A Pilot Study. Boston: Department of Economics, Northeastern University, December 1973. (ED090378)

An analysis of the role played by related instruction in training journeymen in three Boston-area trades -- machinist, electrician and operating engineer. Data were gathered from apprentices, journeymen, apprentice coordinators and others through personal interviews or mail questionnaires. In general, the study concludes that the effect of related instruction on performance of both apprentices and journeymen as measured through hours worked and/or foreman's evaluations, differ in each trade. Includes background information on the structure of the industries and a comparison of related instruction in the three trades. Provides policy recommendations for government, for firms and for JATCs, and sets forth a number of unanswered problems requiring further research.

Swerdloff, Sol. "Study of Operations of Federal Apprenticeship Programs; Preliminary Draft for Discussion." In: Report of the Sixth Meeting of the Federal Committee on Apprenticeship, July 31-August 1, 1975. Chicago, Illinois. Appendix P.

Evaluates the role and operations of the Bureau of Apprenticeship and Training, and recommends that the BAT: (1) emphasize review of quality of apprenticeship programs, (2) spend less time on compliance review and routine servicing of accounts, (3) use resources of other agencies to develop forecasts of future apprenticeship requirements, and (4) establish an analytical staff, information office and clearinghouse.

U.S. Bureau of Apprenticeship and Training. Apprenticeship and CETA: A Guide for Prime Sponsors Under the Comprehensive Employment and Training Act of 1973. Washington, D.C.: June 1974.

One of a series of technical publications which contains suggested procedures for prime sponsors. In three parts: (1) "The Apprenticship System," focusing on characteristics of the system, laws and regulations, (2) "Apprenticeship Services Available to Prime Sponsors," focusing on apprenticeship agencies, state employment service and apprenticeship information centers, vocational and other educational institutions and private organizations, and (3) "Using CETA Authority and Funds for Apprenticeship," focusing on securing the participation of the apprenticeship establishment, expanding the promotion and development, reimbursing training costs, supporting on-job and off-job instruction and supporting upgrading and refresher training. Appendices include lists of: cities with BAT offices, SAC state office cities, apprenticeship information center locations and outreach project locations.

U.S. Bureau of Apprenticeship and Training. Apprenticeship Past and Present. Washington, D.C.: 1969. (ED038505)

A brief history of apprenticeship highlighting the expansion of industry following the industrial revolution, standards and certificates of completion, and new directions in apprenticeship including apprentiship for the disadvantaged, apprenticeship information centers, apprenticeship preparatory courses, apprenticeship prejob programs and veterans in apprenticeship.

U.S. Bureau of Apprenticeship and Training. The National Apprenticeship Program. Rev. ed. Washington, D.C.: Government Printing Office, 1972. (ED032394)

A brief description of the National Apprenticeship Program focusing on its policies and their application in modern industry. Includes a list of apprenticeable occupations and trades.

U.S. Bureau of Apprenticeship and Training. A Note On: Apprenticeship and Economic Change. Washington, D.C.: 1964. (ED022854)

Examines three factors impinging on the apprenticeship system -- unemployment, changes in the occupational composition of workers in industry and the increasing number of high school graduates who enter colleges and universities.

U.S. Bureau of Apprenticeship and Training. Setting Up an Apprenticeship Program, A Step-by-Step Guide in Training Apprentices for Skilled Occupations. Washington, D.C.: 1966. (EDO18618)

This guide provides brief information on starting a program, basic provisions which should be part of the program, minimum standards, job instruction and cost of apprenticeship. Appendices provide sample methods for allocating work training and for determining credit for experience, a list of occupations which are learned through apprenticeship, sample apprenticeship agreements and listings of field offices of the BAT, regional offices, state apprenticeship agencies, executive officers and state directors of vocational education.

U.S. Bureau of Labor Statistics. Characteristics of Construction Agreements, 1972-73. BLS Bulletin 1819. Washington, D.C.: Government Printing Office, 1974.

This is the first of a two-part study of provisions in contract construction collective bargaining agreements. It consists of statistics and tabulations based on 769 agreements covering 1,213,317 workers represented by 16 unions. Agreements included in this study were selected for 26 standard construction crafts for each of the 66 largest SMSA's (i.e., those having 1970 census populations of 500,000 or more).

U.S. Bureau of Labor Statistics. Contract Clauses in Construction Agreements. BLS Bulletin 1864. Washington, D.C.: Government Printing Office, 1975.

Analyzes a variety of provisions in contract construction collective bargaining agreements together with illustrative clauses. Contents cover the following topics: (1) union security, management rights, and other non-economic matters, (2) apprenticeship and training provisions, (3) hiring and referral provisions, (4) seasonality, safety and related provisions, (5) provisions governing working conditions, (6) hours, overtime and premium pay provisions, (7) wages and wage-related provisions, (8) paid and unpaid leave, (9) dispute settlement provisions, and (10) employee benefits.

U.S. Bureau of Labor Statistics. Occupational Outlook Handbook, 1976-77 Edition. BLS Bulletin 1865. Washington, D.C.: Government Printing Office, 1976.

This major source of vocational guidance information includes 300 occupational briefs grouped into 13 clusters of related jobs and 35 industry briefs. For each occupation, the Handbook provides a description of the job, notes the training and education needed and gives some idea of the availability of jobs in the years ahead. The handbook also includes an index of job titles by Dictionary of Occupational Titles code.

U.S. Bureau of Labor Statistics. Tomorrow's Manpower Needs. 4 Vols. BLS Bulletin 1606. Washington, D.C.: Government Printing Office, 1969.

"National manpower projections and a guide to their use as a tool in developing State and area manpower projections." In 4 volumes: (1) Developing Area Manpower Projections, (2) National Trends and Outlook: Industry Employment and Occupational Structure, (3) National Trends and Outlook: Occupational Employment, and (4) The National Industry-Occupational Matrix and Other Manpower Data.

U.S. Women's Bureau. 1975 Handbook on Women Workers. Bulletin 297. Washington, D.C.: Government Printing Office, 1975.

This general handbook on women in the work force includes two brief sections of particular interest: "Women as Members of Unions" (pp. 76-78); and "Apprenticeship Training" (pp. 232-234).

U.S. Women's Bureau. Steps to Opening the Skilled Trades to Women. Washington, D.C.: June 1974.

Knowledge of facts, understanding of equal opportunity laws and actual experience have positive effects on employer and union acceptance of women workers. These guidelines list steps which can be taken by employers, by unions and by women to open the skilled trades to women workers.

University of Connecticut, Labor Education Center. Blacks in the Construction Trades and Effect on Connecticut Economy. Storrs, Conn.: June 1970. (ED048473)

Based on a state-wide survey of students, apprentices, workers, project directors, public officials and union and trade association officers, this study finds that, although black employment in the building trades has increased by almost 50 percent since 1960, blacks still make up less than 7 percent of all construction workers, with few of those in the skilled trades.

Washburne Trade School. A Self-Study Evaluation: Washburne Trade School. Chicago: Chicago Board of Education, 1970-71.

Separate chapters of this evaluation report are devoted to assessments of: (1) the educational task of the school, (2) the availability of student resources, (3) the availability of faculty resources, (4) the availability of financial resources, (5) the availability of physical resources, (6) the organization of the school, (7) the ability of the school's policies and practices to foster high faculty morale, (8) the relevance of student life to the school's educational task, and (9) consistency of student achievement with the purposes of the school.

Washburne Trade School. Topical Outlines of Training Programs Offered at the Washburne Trade School. Chicago: Chicago Board of Education, 1971.

This report includes outlines of training programs for 6 open enrollment programs (not work study programs affiliated directly with industry or labor), 14 building construction trades and 9 apprenticeable trades other than building construction.

## APPENDIX

In some tables, N is greater than the number of respondents because some respondents may have checked more than one item.

In others, N is less than the number of respondents because some respondents may not have checked any item.

## APPENDIX CONTENT


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TABLE A-25: Attitude of Apprentices Surveyed Toward Information About Apprenticeship Programs, By Race/Ethnic Group

TABLE A-26: Factors Helping Apprentices Surveyed to Apply for an Apprenticeship Position, By Race/Ethnic Group

TABLE A-27: High School Courses Apprentices Surveyed Felt Were Helpful

TABLE A-28: Courses Apprentices Surveyed Wished They Had Taken

TABLE A-29: Problems With Related Course Instruction Identified By Apprentices Surveyed, By Race/Ethnic Group

EXHIBIT A-1

ILLINOIS APPRENTICESHIP SURVEY
PROGRAM DATA COLLECTION INFORMATION

PROGRAM ID NO. _____ (1-4)

Program Name: _____

Program Director/Coordinator Name and Address:

_____

_____

_____

Bargaining Agent: _____

1. Type of program (trade or craft) _____ (5-7)

| | | FOR THE YEAR OF ... 1973 | | 1974 | | 1975 | |
|---|---|---|---|---|---|---|---|
| 2. | Number of enrolled apprentices | ____ | (8-10) | ____ | (26-28) | ____ | (44-46) |
| 3. | Number of dropouts | ____ | (11-13) | ____ | (29-31) | ____ | (47-49) |
| 4. | Number of completions | ____ | (14-16) | ____ | (32-34) | ____ | (50-52) |
| 5. | Number of accessions | ____ | (17-19) | ____ | (35-37) | ____ | (53-55) |
| 6. | Number of suspensions | ____ | (20-22) | ____ | (38-40) | ____ | (56-58) |
| 7. | Number of terminations | ____ | (23-25) | ____ | (41-43) | ____ | (59-60) |
| 8. | Sex of current enrolled apprentices | | | | | | |
| | Male | ____ | (61-63) | ____ | (67-69) | ____ | (73-75) |
| | Female | ____ | (64-66) | ____ | (70-72) | ____ | (76-78) |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9. | Race or ethnic origin of current enrolled apprentices | | | | | | |
| | White | ____ | (5-7) | ____ | (23-25) | ____ | (41-43) |
| | Black | ____ | (8-10) | ____ | (26-28) | ____ | (44-46) |
| | Spanish surname | ____ | (11-13) | ____ | (29-31) | ____ | (47-49) |
| | Oriental | ____ | (14-16) | ____ | (32-34) | ____ | (50-52) |
| | American Indian | ____ | (17-19) | ____ | (35-37) | ____ | (53-55) |
| | Other | ____ | (20-22) | ____ | (38-40) | ____ | (56-58) |
| 10. | Number who are veterans | ____ | (59-61) | ____ | (62-64) | ____ | (65-67) |

11. Wage rate as percent of journeyman rate -- Beginning apprentices -- 1975 _____ (68-69)
[Code actual percent to nearest percent]

PROGRAM INFORMATION:

12. Sponsorship of program: (70)
-1 Joint
-2 Non-joint
-3 Unilateral
-4 National

13. Type of related instruction: (71)
-1 High school
-2 Community college
-3 Other public
-4 Private
-0 Other

13. Length of program, in hours: (72)
-1 2,000
-2 4,000
-3 6,000
-4 8,000
-5 10,000

15. BAT FIELD OFFICE:

-1 Berkeley
-2 Des Plaines
-3 Lansing
-4 Peoria
-5 Rockford
-6 Rock Island
-7 Springfield
-8 Wood River

ATR: _____ (73)

16. Apprentice names and addresses available:

-1 Yes
-2 No
-X Don't know

(74)

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17. Age of current enrolled apprentices:

| | FOR THE YEAR OF ... 1973 | 1974 | 1975 |
|---|---|---|---|
| Under 18 | ____ (5-6) | ____ (27-28) | ____ (49-50) |
| 18 | ____ (7-8) | ____ (29-30) | ____ (51-52) |
| 19 | ____ (9-10) | ____ (31-32) | ____ (53-54) |
| 20 | ____ (11-12) | ____ (33-34) | ____ (55-56) |
| 21 | ____ (13-14) | ____ (35-36) | ____ (57-58) |
| 22 | ____ (15-16) | ____ (37-38) | ____ (59-60) |
| 23 | ____ (17-18) | ____ (39-40) | ____ (61-62) |
| 24 | ____ (19-20) | ____ (41-42) | ____ (63-64) |
| 25 | ____ (21-22) | ____ (43-44) | ____ (65-66) |
| 26-29 | ____ (23-24) | ____ (45-46) | ____ (67-68) |
| 30 and over | ____ (25-26) | ____ (47-48) | ____ (69-70) |

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EXHIBIT A-2

_____ (1-4)

APPRENTICE PROGRAM SPONSOR QUESTIONNAIRE

First, we would like to gather some information about the nature of your program. This is designed to allow us to examine the responses in light of the different types of programs.

1. What is the status of your program? -1 Active - registered with apprentices enrolled (5)
   -2 Inactive - registered, but with no enrolled apprentices
   -3 Cancelled

2. What occupations are apprenticed in your program? Please provide the full title of the occupation. Where your program has more than one occupation apprenticed, please list the three (3) largest in order of size (number of apprentices), from largest to smallest.

   1. _____ (6-14)
   2. _____ (15-23)
   3. _____ (24-32)

In the next six questions we would like to find out a little more about the operation of your apprentice program in terms of program length, wages, length of related instruction courses, sources of related instruction, etc. Where information is solicited for individual occupations, please respond in the same order (largest to smallest) for each occupation listed in Question 2 above.

3. What is the wage rate for BEGINNING apprentices as a percent of the current journeyman rate?

   In our program, beginning apprentices are paid _____% of the journeyman rate. (33-34)

4. How long is your apprenticeship program, in hours? Please use the following codes, to the nearest category, to indicate this length.

   -1 2,000 hours
   -2 4,000 hours
   -3 6,000 hours
   -4 8,000 hours
   -5 10,000 hours

   The apprenticeship program for Occupation #1 lasts _____. (35)
   The apprenticeship program for Occupation #2 lasts _____. (36)
   The apprenticeship program for Occupation #3 lasts _____. (37)

5. How many hours of related instruction (classroom) are apprentices in your program required to complete per year? Please enter the number of hours, per year, for the program.

   In our program, apprentices are required to attend _____ hours per year. (38-40)

6. Who provides the related instruction for the occupations apprenticed in your program? Please use the following codes to indicate the instruction provider. Where more than one provider is utilized, enter the code numbers for all providers.

   -1 Public Secondary School
   -2 Vocational School
   -3 Community College
   -4 Labor Organization
   -5 Employer
   -6 Correspondence School
   -7 Other, specify:
   _____

   In Occupation #1, related instruction is provided by _____. (41)
   In Occupation #2, related instruction is provided by _____. (42)
   In Occupation #3, related instruction is provided by _____. (43)

7. Please indicate whether the related instruction is given on-site (at the place of employment), off-site, or both. Please use the following codes in response to this question:

-1 On-Site -2 Off-Site -3 Both

In Occupation #1, related instruction is given _____. (44)
In Occupation #2, related instruction is given _____. (45)
In Occupation #3, related instruction is given _____. (46)

8. The last question in this descriptive area is about the source of the related instruction course outline. For your program, please indicate who developed the curriculum for related training. (CIRCLE ONE.)

-1 Employer
-2 Employer (trade) association
-3 Local labor organization
-4 Non-local (regional, national) labor organization
-5 Local school
-6 Other, specify: _____ (47)

In answering the following questions, please respond in terms of your entire apprenticeship program, without reference to particular occupations within the program.

9. How would you rate the RELATED INSTRUCTION portions of your apprentice program in the following areas? (PLEASE CIRCLE ONE CODE FOR EACH AREA.)

| | Outstanding | Good | Satisfactory | In Need of Improvement | |
|---|---|---|---|---|---|
| Job-relatedness | -1 | -2 | -3 | -4 | (48) |
| Organization | -1 | -2 | -3 | -4 | (49) |
| Completeness | -1 | -2 | -3 | -4 | (50) |
| Relevance for today's journeyman | -1 | -2 | -3 | -4 | (51) |
| Overall quality | -1 | -2 | -3 | -4 | (52) |

10. In terms of related instruction, how satisfactory is your program's contact or interaction with each of the following? (CIRCLE ONE CODE FOR EACH ITEM.)

| | Outstanding | Good | Satisfactory | In Need of Improvement | Never Contact Them | |
|---|---|---|---|---|---|---|
| Related instruction providers | -1 | -2 | -3 | -4 | -0 | (53) |
| Instructors | -1 | -2 | -3 | -4 | -0 | (54) |
| Illinois Vocational Education | -1 | -2 | -3 | -4 | -0 | (55) |
| Labor organizations | -1 | -2 | -3 | -4 | -0 | (56) |
| Employer | -1 | -2 | -3 | -4 | -0 | (57) |
| Bureau of Apprenticeship & Training | -1 | -2 | -3 | -4 | -0 | (58) |
| State Employment Service | -1 | -2 | -3 | -4 | -0 | (59) |

11. How would you rate the on-the-job training portions of your program in the following areas? (CIRCLE ONE CODE FOR EACH ITEM.)

| | Outstanding | Good | Satisfactory | In Need of Improvement | |
|---|---|---|---|---|---|
| Job-relatedness | -1 | -2 | -3 | -4 | (60) |
| Organization | -1 | -2 | -3 | -4 | (61) |
| Completeness | -1 | -2 | -3 | -4 | (62) |
| Relevance for today's journeyman | -1 | -2 | -3 | -4 | (63) |
| Overall quality | -1 | -2 | -3 | -4 | (64) |

12. Still thinking in terms of on-the-job training, how satisfactory is your program contact or interaction with each of the following? (CIRCLE ONE CODE FOR EACH ITEM.)

| | Outstanding | Good | Satisfactory | In Need of Improvement | Never Contact Them | |
|---|---|---|---|---|---|---|
| Related instruction provider | -1 | -2 | -3 | -4 | -0 | (65) |
| Instructors | -1 | -2 | -3 | -4 | -0 | (66) |
| Illinois Vocational Education | -1 | -2 | -3 | -4 | -0 | (67) |
| Labor organizations | -1 | -2 | -3 | -4 | -0 | (68) |
| Employer | -1 | -2 | -3 | -4 | -0 | (69) |
| Bureau of Apprenticeship & Training | -1 | -2 | -3 | -4 | -0 | (70) |
| State Employment Service | -1 | -2 | -3 | -4 | -0 | (71) |

13. How would you evaluate the effectiveness of apprentice instructors for both related instruction and on-the-job training? (CIRCLE ONE CODE FOR EACH TYPE OF INSTRUCTOR.)

| | Outstanding | Good | Satisfactory | In Need of Improvement | |
|---|---|---|---|---|---|
| On-the-job instructors | -1 | -2 | -3 | -4 | (72) |
| Related instruction instructors | -1 | -2 | -3 | -4 | (73) |

14. Do you feel that on-the-job instructors are in need of additional trade experience or instructor training to improve the effectiveness of instruction?

| | Yes | No | Don't Know | |
|---|---|---|---|---|
| Additional trade experience | -1 | -2 | -0 | (74) |
| Instructor training | -1 | -2 | -0 | (75) |

15. Do you feel that related training instructors are in need of additional trade experience or instructor training to improve the effectiveness of instruction?

| | Yes | No | Don't Know | |
|---|---|---|---|---|
| Additional trade experience | -1 | -2 | -0 | (76) |
| Instructor training | -1 | -2 | -0 | (77) |

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16. How many NEW apprentices have actually begun work in the past 12 months? _____ (5-8)

16a. If none in the past 12 months, how many months has it been since the last new apprentice began work? _____ (9-11)

17. Has a compliance review of your affirmative action efforts been made by the Bureau of Apprenticeship and Training in the past 12 months? -1 Yes -2 No (12)

17a. If YES, has your program been found to be in compliance with Federal guidelines?
-1 Yes -2 No -3 Review Pending (13)

18. Thinking of your entire apprenticeship program, please indicate the frequency of your contacts or interactions with each of the following organizations or persons with respect to apprenticeship programs. (CIRCLE ONE CODE FOR EACH ITEM.)

| | Regularly | Irregularly | Never Contact Them | |
|---|---|---|---|---|
| Employer | -1 | -2 | -3 | (14) |
| Labor organization | -1 | -2 | -3 | (15) |
| Trade association | -1 | -2 | -3 | (16) |
| Related instruction provider | -1 | -2 | -3 | (17) |
| Instructors | -1 | -2 | -3 | (18) |
| Bureau of Apprenticeship & Training | -1 | -2 | -3 | (19) |
| Illinois Vocational Education | -1 | -2 | -3 | (20) |
| Outreach agencies | -1 | -2 | -3 | (21) |
| State Employment Service | -1 | -2 | -3 | (22) |
| Other apprenticeship programs | -1 | -2 | -3 | (23) |

19. How would you rate these interactions with regard to your apprentice program? (CIRCLE ONE CODE FOR EACH ITEM.)

| | Very Helpful | Somewhat Helpful | Not Often Helpful | Often a Problem | Never Contact Them | |
|---|---|---|---|---|---|---|
| Employer | -1 | -2 | -3 | -4 | -0 | (24) |
| Labor organization | -1 | -2 | -3 | -4 | -0 | (25) |
| Trade association | -1 | -2 | -3 | -4 | -0 | (26) |
| Related instruction provider | -1 | -2 | -3 | -4 | -0 | (27) |
| Instructors | -1 | -2 | -3 | -4 | -0 | (28) |
| Bureau of Apprenticeship & Training | -1 | -2 | -3 | -4 | -0 | (29) |
| Illinois Vocational Education | -1 | -2 | -3 | -4 | -0 | (30) |
| Outreach agencies | -1 | -2 | -3 | -4 | -0 | (31) |
| State Employment Service | -1 | -2 | -3 | -4 | -0 | (32) |
| Other apprentice programs | -1 | -2 | -3 | -4 | -0 | (33) |

20. Next, thinking of your apprenticeship program and your contacts with different components of apprenticeship in Illinois, how would you rate the potential of the following to aid in any improvements in apprenticeship programs in the State? (CIRCLE ONE CODE FOR EACH ITEM.)

| | Very Helpful | Somewhat Helpful | Will Pose a Barrier to Improvements | |
|---|---|---|---|---|
| Employers | -1 | -2 | -3 | (34) |
| Labor organizations | -1 | -2 | -3 | (35) |
| Trade associations | -1 | -2 | -3 | (36) |
| Related instruction providers | -1 | -2 | -3 | (37) |
| Instructors | -1 | -2 | -3 | (38) |
| Bureau of Apprenticeship & Training | -1 | -2 | -3 | (39) |
| Illinois Vocational Education | -1 | -2 | -3 | (40) |
| Outreach agencies | -1 | -2 | -3 | (41) |
| State Employment Service | -1 | -2 | -3 | (42) |

21. Looking to the future of apprenticeship programs in the State of Illinois, how would you rate the importance and significance of the following to the continued development and successful growth of apprenticeship programs? (CIRCLE ONE CODE FOR EACH ITEM.)

| | Very Important | Somewhat Important | Average Importance | Not at all Important | |
|---|---|---|---|---|---|
| Employers | -1 | -2 | -3 | -4 | (43) |
| Labor organizations | -1 | -2 | -3 | -4 | (44) |
| Trade associations | -1 | -2 | -3 | -4 | (45) |
| Related instruction providers | -1 | -2 | -3 | -4 | (46) |
| Instructors | -1 | -2 | -3 | -4 | (47) |
| Bureau of Apprenticeship & Training | -1 | -2 | -3 | -4 | (48) |
| Illinois Vocational Education | -1 | -2 | -3 | -4 | (49) |
| Outreach agencies | -1 | -2 | -3 | -4 | (50) |
| State Employment Service | -1 | -2 | -3 | -4 | (51) |

22. Finally, we would like to find out what you think are the greatest problems facing apprenticeship programs in general, and your program in particular. In the following list, would you please indicate whether you feel the area listed is a serious problem, a problem area, or not a problem at all. (CIRCLE ONE CODE FOR EACH ITEM.)

| | A Serious Problem Area | A Problem Area | Not a Problem At All | |
|---|---|---|---|---|
| RELATED INSTRUCTION | | | | |
| A. Involvement with apprentice programs | -1 | -2 | -3 | (52) |
| B. Completeness of training | -1 | -2 | -3 | (53) |
| C. Applicability of training | -1 | -2 | -3 | (54) |
| D. Relationship with on-the-job training | -1 | -2 | -3 | (55) |
| E. School facilities (space, equipment, etc.) | -1 | -2 | -3 | (56) |
| F. School budget | -1 | -2 | -3 | (57) |
| G. Course materials | -1 | -2 | -3 | (58) |
| H. Proximity to instruction source | -1 | -2 | -3 | (59) |
| ON-THE-JOB TRAINING | | | | |
| I. Involvement with apprentice programs | -1 | -2 | -3 | (60) |
| J. Completeness of training | -1 | -2 | -3 | (61) |
| K. Applicability of training | -1 | -2 | -3 | (62) |
| L. Relationship with related instruction | -1 | -2 | -3 | (63) |
| ACCESS TO APPRENTICESHIP | | | | |
| M. For veterans | -1 | -2 | -3 | (64) |
| N. For handicapped persons | -1 | -2 | -3 | (65) |
| O. For women | -1 | -2 | -3 | (66) |
| P. For minority persons | -1 | -2 | -3 | (67) |
| COORDINATION WITH: | | | | |
| Q. Related instruction providers | -1 | -2 | -3 | (68) |
| R. Employers | -1 | -2 | -3 | (69) |
| S. Trade associations | -1 | -2 | -3 | (70) |
| T. Labor organizations | -1 | -2 | -3 | (71) |
| U. Bureau of Apprenticeship & Training | -1 | -2 | -3 | (72) |
| V. Illinois Vocational Education | -1 | -2 | -3 | (73) |
| W. State Employment Service | -1 | -2 | -3 | (74) |

23. Which of the problem areas listed above do you think is the most important problem facing your program and all other programs in Illinois? Please insert the letter identifying that area below.

The most important problem is (INSERT LETTER FROM ABOVE:)_____. (75)

23a. Which of these areas do you think presents the second most important problem? Again, please insert the letter from the list above.

The second most important problem is _____. (76)

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24. What would you suggest, as a result of your experience, as the best solutions for the problem area you selected as the most important? Please write below any suggestions or recommendations you have for improvements in vocational education and apprenticeship programs in Illinois. (Use the back of page 7 if you need more room.)

25. What is your reaction to the establishment of a State Apprenticeship Council in Illinois? (CIRCLE ONE.)

-1 Favor strongly
-2 Favor
-3 Indifferent
-4 Oppose
-5 Oppose strongly

(5)

25a. Why do you feel this way? What do you think the consequences of the establishment might be for apprenticeship programs in Illinois? (Use the back of page 7 if you need more room.)

The final two questions will provide us with additional information to be used in our description of current apprenticeship programs in Illinois. Would you please provide us with data on the educational and age levels of your current apprentices?

26. For currently enrolled apprentices, please indicate the number who had achieved the following levels of education prior to enrollment in your program:

The number of current active apprentices who had:

| | | |
|---|---|---|
| Completed eighth grade or less. . . . . | _____ | (6-8) |
| Attended high school, did not graduate . . . . . | _____ | (9-11) |
| Graduated high school . . . . . | _____ | (12-14) |
| Attended two-year college, did not graduate . . . . . | _____ | (15-17) |
| Graduated two-year college program . . . . . | _____ | (18-20) |
| Attended four-year college, did not graduate. . . . . | _____ | (21-23) |
| Graduated four-year college program . . . . . | _____ | (24-26) |

27. Finally, would you please indicate the number of current apprentices who are now in the following age categories?

The number of current active apprentices in each age category:

| | | | |
|---|---|---|---|
| Under 18 years of age | _____ (27-29) | 22 years of age | _____ (42-44) |
| 18 years of age | _____ (30-32) | 23 years of age | _____ (45-47) |
| 19 years of age | _____ (33-35) | 24 years of age | _____ (48-50) |
| 20 years of age | _____ (36-38) | 25 years of age | _____ (51-53) |
| 21 years of age | _____ (39-41) | 26 to 29 years of age | _____ (54-56) |
| | | 30 years of age and over | _____ (57-59) |

In the course of this project, we would like to talk directly with a number of apprenticeship program sponsors to pursue the topics addressed in this questionnaire as well as others. This discussion would last less than 30 minutes, and would be scheduled at your convenience. Your assistance in this endeavor would be greatly appreciated and would provide you with the additional opportunity to provide guidance input for the future of vocational education and its interaction with apprenticeship programs in Illinois.

Would you be willing to discuss your opinions and thoughts with a member of our project staff?

_____YES _____NO

Please enter your name, address and telephone number on the lines below:

Name:_____

Title:_____

Company:_____

Address:_____

_____

Telephone:_____

Please indicate your business/occupational relationship with the apprenticeship program. (CIRCLE ONE.)

-1 Apprentice Coordinator (60)
-2 JAC Member (Labor)
-3 JAC Member (Management)
-4 Employer
-5 Journeyman
-6 Other, specify:

_____

We thank all of you who took the time to respond to this questionnaire for your assistance in this worthy research project. It is our endeavor to provide guidance to policy decision makers through sound research which can only be based on your input. Thank you for your help.

EXHIBIT A-3

FRANK H. CASSELL & ASSOCIATES
230 North Michigan Avenue
Chicago, Illinois 60601

Val_____
Date_____
Phone Mail

Study: #835/01 - Apprenticeship

Interviewer:_____

Date:_____

Time Started:_____ Ended:_____

Name_____

Title_____

Company/Organization_____

_____

Address_____

City_____

Phone No. (Area Code)_____

(CIRCLE ONE:)
-1 Apprentice Coordinator
-2 JAC Member (Labor)
-3 JAC Member (Management)
-4 Employer
-5 Government Official
-6 BAT
-7 Educator
-8 Community Organization Member
-9 Professional Organization Member
-10 Student Organization Member

1. How would you describe the apprenticeship system in Illinois -- that is, what are the various aspects or components which make up the apprenticeship system?

1a. (IF NOT MENTIONED, ASK ABOUT THE AREAS LISTED BELOW. FOR EACH AREA, BRIEFLY DISCUSS:) What is the value of this aspect of the apprenticeship system? How active is this component as the system now operates? How effective is their participation?

-- vocational counseling and exposure to skilled craft career opportunities:

-- recruitment of apprentices:

-- labor union participation:

-- employer/management participation;

-- related technical instruction:

-- vocational education at the secondary and community college level:

-- role of BAT and State Employment Service:

2. In your opinion, how do young people in general feel about the skilled crafts as a career choice? (PROBE FOR PERCEPTION OF STATUS OF OCCUPATION, TRAINING TIME, PAY EXPECTATIONS [SHORT-RUN EARNINGS, STEADINESS OF WORK, LONG-TERM EARNINGS], REQUIREMENTS OF THE CRAFTS.) What do you think has contributed to this attitude or image of the skilled crafts?

3. What kinds of young people are interested in entering skilled craft or apprenticeship programs? (PROBE FOR ECONOMIC, EDUCATIONAL, FAMILY BACKGROUND CHARACTERISTICS.) Why these people, do you think?

4. What are the competing occupations or careers which young people who qualify for apprenticeship choose instead of apprenticeship?

5. Are young people who are interested in careers in the skilled crafts adequately prepared or qualified? In what areas do they tend to be weak and what might be done to strengthen the problem areas? (IF NOT MENTIONED, ASK:) What improvements might be made in preparatory schooling, especially in the vocational education area?

6. From your perspective, how do young people typically find out about career opportunities in the skilled crafts? (PROBE FOR SPECIFIC SOURCES OF INFORMATION.) How knowledgeable and well informed are the young people about these opportunities? (PROBE FOR SPECIFIC AREAS OF MISINFORMATION AND LACK OF INFORMATION.)

7. What might be done to facilitate communication of this career information to potential craftspersons? (PROBE FOR WHO OR WHERE THE SOURCES OF INFORMATION SHOULD BE.) Why do you think this would be an effective means of promoting awareness of careers in the skilled crafts?

8. In terms of apprenticeship programs, what factors tend to motivate or discourage young people's application to these programs? (PROBE FOR FACTORS SUCH AS FAMILY, FRIENDS, RECOMMENDATION BY COUNSELORS, COST OF HIGHER EDUCATION, EARNING WHILE LEARNING, WAGE AND BENEFITS OF SKILLED CRAFTS, PROBLEMS WITH THE APPLICATION PROCESS ITSELF.)

9. What factors do you feel restrict the hiring of apprentices? Why?

10. What can be done to increase jobs for apprentices in Illinois at the present time? What about for the longer term?

11. What do you see as your role in the apprenticeship system? (PROBE: What do you do? How? When?)

12. What are the major problems you face in your role within the apprenticeship system? Can you give me some examples?

13. (DO NOT ASK OF EDUCATORS.) In what ways, if any, do local vocational education personnel facilitate your work in terms of the skilled crafts or apprenticeship programs? (PROBE FOR FREQUENCY OF CONTACT, SPECIFIC EXAMPLES.)

14. (DO NOT ASK OF EDUCATORS.) In what ways, if any, do your interactions with vocational education personnel result in problems? Examples?

15. (EVEN IF ALREADY MENTIONED, VERIFY AND FOLLOW APPROPRIATE SKIP PATTERN:)

Do you recruit applicants for apprenticeship programs?

-1 Yes -2 No -- SKIP TO Q. 16

15a. How do you go about recruiting applicants? What problems do you encounter? How might they be resolved or the situation improved? (IF NOT MENTIONED, ASK:) Is recruitment of minorities a problem, and if so, in what ways?

15b. What happens to the applicants you recruit? Of those who are accepted into an apprenticeship program, do you know what problems, if any, they face in adjusting to the position? (PROBE ABOUT RECRUITS WHO DROP OUT.)

16. (EVEN IF ALREADY MENTIONED, VERIFY AND FOLLOW APPROPRIATE SKIP PATTERN.)

Are you involved in providing jobs at the apprenticeship level either directly or indirectly?

-1 Yes -2 No -- SKIP TO Q. 18

16a. How are apprenticeship level job openings determined on a short-range basis? On a long-range basis?

16b. How does the cost of training influence the decision to train apprentices?

16c. How do you go about filling the apprenticeship level jobs? (PROBE FOR SOURCES OF HELP.) What main problems do you encounter?

17. Have you been involved in the cooperative training of high school students on jobs leading to apprenticeships?

-1 Yes -2 No -- SKIP TO Q. 18

17a. What do you think of this program? What advantages or benefits does it offer?

17b. What problems have you encountered with this program? How might the problems be alleviated or the situation improved?

17c. What usually happens to the graduates of this program? (IF NOT MENTIONED, ASK:) Have any entered an apprenticeship program? Is credit given for time spent on the job in the co-operative training program upon entrance into the apprenticeship program? Do they usually complete the apprenticeship program? If not, why?

18. In your experience, what factors seem to facilitate apprentices' progress through the program? (IF NOT MENTIONED, ASK:) Does a vocational education background help? Please explain.

19. What factors contribute to apprentices dropping out before completion of the program?

20. **Thinking about related technical instruction, please indicate whether you feel each of the following areas is a serious problem, a problem area, or not a problem at all.** (READ LIST. CIRCLE ONE CODE FOR EACH ITEM.)

| | Serious Problem | Problem Area | Not a Problem | Don't Know |
|---|---|---|---|---|
| a. establishment of curriculum | -1 | -2 | -3 | -0 |
| b. space or facilities | -1 | -2 | -3 | -0 |
| c. supplies, books, etc. | -1 | -2 | -3 | -0 |
| d. qualified instructors | -1 | -2 | -3 | -0 |
| e. distance for apprentices | -1 | -2 | -3 | -0 |
| f. travel time for apprentices | -1 | -2 | -3 | -0 |
| g. poor attendance | -1 | -2 | -3 | -0 |
| h. budget | -1 | -2 | -3 | -0 |
| i. cost | -1 | -2 | -3 | -0 |
| j. class scheduling | -1 | -2 | -3 | -0 |
| k. scheduling of on-site instruction | -1 | -2 | -3 | -0 |
| l. thoroughness of training | -1 | -2 | -3 | -0 |
| m. usefulness of training for present job | -1 | -2 | -3 | -0 |

20a. (FOR EACH AREA WHICH R. HAS INDICATED AS A SERIOUS PROBLEM, ASK:) How and why is this a problem? What might be done to improve the situation? (IDENTIFY PROBLEM AREA BEING DISCUSSED.)

(ASK OF EDUCATORS ONLY:)

E1. Do you serve as a consultant on any apprenticeship programs? If so, what are your functions in this capacity? How did you become a consultant? What has this experience been like? (PROBE FOR SUCCESSES, PROBLEMS ENCOUNTERED.)

E2. Do you instruct apprentices in related technical training?

-1 Yes -2 No -- SKIP TO Q. E3

E2a. How was the curriculum prepared? By whom? How adequate or appropriate was the curriculum, in your opinion? What suggestions do you have for ways to improve the curriculum for related technical training?

E2b. When and how are progress reports made to program sponsors? What is covered in the report? How useful do you feel these reports are?

E2c. What is your impression of the value of related instruction to apprentices?

(ASK OF EDUCATORS ONLY:)

E3. What are the certification requirements of related training instructors for apprentices? Does certification pose any problems in the establishment or administration of related instruction? In what ways? Any recommendations?

E4. Are budget or reimbursement factors a problem in the administration of vocational education and/or apprenticeship-related training programs? How? Why? What might be done about these problems?

E5. In what ways, if any, do other local vocational education personnel facilitate your work in terms of the skilled crafts or apprenticeship programs? (PROBE FOR FREQUENCY OF CONTACT, SPECIFIC EXAMPLES.)

(ASK OF EDUCATORS ONLY:)

E6. In what ways, if any, do your interactions with other vocational education personnel result in problems? Examples?

E7. What efforts, if any, have been made on the part of educators to establish a working relationship with apprenticeship programs? What successes have you had or have you heard of? What problems have been encountered? What actions can you recommend to either establish or expand a working relationship to provide related instruction for apprenticeship program sponsors?

EXHIBIT A-4

FRANK H. CASSELL AND ASSOCIATES
230 North Michigan Avenue
Chicago, Illinois 60601

APPRENTICE QUESTIONNAIRE
R. ID No._____ (1-4)

Study: #835/01 - Apprenticeship

First, we would like to get some background information. Please circle one number code for each of the following items:

1. AGE: -1 Under 18 -2 18 to 21 -3 22 to 25 -4 26 to 29 -5 30 and over (5)

2. SEX: -1 Male -2 Female (6)

3. VETERAN: -1 Yes -2 No (7)

4. Which do you consider yourself? -1 White -2 Black -3 American Indian -4 Spanish origin -5 Oriental -0 Other, specify:_____ (8)

5. What level of education had you completed at the time you entered the apprenticeship program?

-1 8th grade or less
-2 grade 9 to 11
-3 graduated high school
-4 1 or 2 years of college
-5 3 or 4 years of college
-6 graduated college
-7 college graduate work
(9)

6. What is the title of your apprenticeship trade?_____ (10-18)

7. Circle the code number of the location closest to where you work:

-1 City of Chicago
-2 Chicago suburban area
-3 Peoria
-4 Rockford
-5 Rock Island
-6 Springfield
-7 Wood River
(19)

8. In what year are you in the apprenticeship program?

-1 First year
-2 Second year
-3 Third year
-4 Fourth year
-5 Fifth year
-6 Sixth year
(20)

9. Where is your related course instruction provided?

-1 On-site (at place of employment)
-2 Off-site
-3 Both on- and off-site
(21)

10. Who teaches the related instruction?

-1 Public secondary school
-2 Vocational school
-3 Labor organization
-5 Employer
-6 Correspondence school
-0 Other, specify:_____
(22)

Now we would like to find out about your experiences with the apprenticeship program.

11. How did you learn about apprenticeship in the skilled crafts? (CIRCLE ALL THAT APPLY)

-1 From family members
-2 From friends
-3 From a high school counselor
-4 From a vocational education teacher (like a shop teacher)
-5 From a community or junior college teacher
-6 From a community or junior college counselor
-0 Other, specify:_____
(23)

12. Was the information you received about apprenticeship programs: (CIRCLE ONE)

-1 Very helpful (24)
-2 Somewhat helpful
-3 Would have wanted to know more
-4 Not at all helpful

13. What other kinds of information would have been helpful to you?

14. What factors helped you decide to apply for an apprenticeship position? (CIRCLE ALL THAT APPLY)

-1 Recommendation by counselor (25)
-2 Encouragement by family or friends
-3 High cost of higher education
-4 Like to work with my hands
-5 Like the idea of earning while learning
-6 Lack of interest in any other kind of work
-7 Good journeyman wages and fringe benefits
-8 Financial pressures of working right away
-0 Other, specify: _____

_____

15. What jobs were you interested in before you became an apprentice? Please list these jobs:

_____ (26-35)

_____

Why did you decide to become an apprentice instead of going into one of these other occupations?

16. What courses did you take in junior high or high school that you have found helpful in this apprenticeship program? (CIRCLE ALL THAT APPLY)

-1 Basic math
-2 Algebra
-3 Geometry
-4 Wood shop
-5 Auto shop
-6 Blueprint reading or engineering drawing
-7 General industrial arts
-8 Vocational education
-0 Other, specify:_____
-X None

(36)

17. What courses do you wish you had taken before entering apprenticeship that you think would have been helpful? (CIRCLE ALL THAT APPLY)

-1 Basic math
-2 Algebra
-3 Geometry
-4 Wood shop
-5 Auto shop
-6 Blueprint reading or engineering drawing
-7 General industrial arts
-8 Vocational education
-0 Other, specify:_____
-X None

(37)

18. What problems did you run into when you applied for the apprenticeship program? (CIRCLE ALL THAT APPLY)

-1 lacked required school courses
-2 lacked high school diploma
-3 lacked GED certificate
-4 missed period for filing application
-5 getting a physical examination
-6 meeting residency requirements
-7 obtaining required documents such as birth certificate, school transcripts
-8 passing aptitude test
-9 difficulty with oral interview
-0 Other, specify:_____
-X No problems

(38)

19. How long did you have to wait from the time you applied and were accepted to the time you were actually enrolled and started working? (CIRCLE ONE)

-1 1 to 3 months
-2 3 to 6 months
-3 6 to 9 months
-4 9 to 12 months
-5 over 12 months

(39)

20. Thinking about your related course instruction, which of the following are problem areas for you? (CIRCLE ALL THAT APPLY)

-1 transportation to the location of my related course instruction
-2 distance to the location of my related course instruction
-3 cost of related instruction materials (books, etc.)
-4 understanding the materials my instructor covers
-5 understanding my instructor because English is not my first language
-6 keeping up with the course work
-7 applying what I learn in related course instruction to work I do on the job
-0 Other, specify:_____

_____

-X No problem areas

(40)

21. Overall, how do you feel about being an apprentice? Please circle the number below the face which best expresses the way you feel about being an apprentice.

-1 -2 -3 -4 -5 -7 -7 (41)

Please use the space below to tell us how you feel about being an apprentice. For example, why did you choose that face?

22. Please use the remaining space to write any other comments you have about the apprenticeship program. For example, what special problems have you had? What suggestions do you have for improving the apprenticeship system?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!

SKIP 42-79
1 in 80

TABLE A-1

SUMMARY DESCRIPTION OF ILLINOIS PROGRAM SPONSORS, 1975

| | Number | Percent |
|---|---|---|
| Activity | | |
| Beginning of Period | 15,759 | |
| Cancelled | 644 | |
| Completed | 1,140 | |
| Added | 842 | |
| End of Period | 14,817 | |
| Sex | | |
| Male | 15,800 | 99.7 |
| Female | 49 | .3 |
| Race | | |
| White | 13,401 | 84.6 |
| Black | 1,769 | 11.1 |
| Spanish Surname | 507 | 3.2 |
| Oriental | 48 | .3 |
| American Indian | 84 | .5 |
| Other | 36 | .2 |
| Region | | |
| Berkeley | 3,222 | 20.4 |
| Des Plaines | 3,962 | 25.1 |
| Lansing | 3,538 | 22.4 |
| Peoria | 864 | 5.5 |
| Rockford | 660 | 4.2 |
| Rock Island | 1,085 | 6.9 |
| Springfield | 1,165 | 7.4 |
| Wood River | 1,263 | 8.0 |

Source: Bureau of Apprenticeship and Training

TABLE A-2

APPRENTICE REGISTRATIONS IN SELECTED OCCUPATIONAL GROUPS, END OF PERIOD 1974, BY RACE/ETHNIC GROUP AND SEX

| Occupational Group/DOT Code | Number | Percent of All Illinois Apprentices | Race/Ethnic Group (Percent)# | | | | | Sex (Percent) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | White | Black | Oriental | American Indian | Spanish American | Male | Female |
| Auto & Related Mechanics<br>620-281-014<br>845-781-018 | 334 | 2.1 | 90.4 | 8.1 | 0.3 | 0.3 | 0.9 | 100.0 | 0.0 |
| Bricklayer<br>861-381-010 | 455 | 2.9 | 75.8 | 21.5 | 0.4 | 0.7 | 1.5 | 100.0 | 0.0 |
| Carpenters<br>860-381-026<br>860-281-014 | 2,087 | 13.3 | 86.6 | 10.5 | 0.3 | 0.3 | 2.3 | 97.7 | 0.3 |
| Cooks, Bakers<br>313-381-018<br>313-381-034<br>526-781-010 | 24 | 0.1 | 66.7 | 33.3 | 0.0 | 0.0 | 0.0 | 95.8 | 4.2 |
| Draftsmen<br>01-281-010<br>03-281-010<br>07-281-014<br>17-281-026 | 53 | 0.3 | 96.2 | 1.9 | 1.9 | 0.0 | 0.0 | 100.0 | 0.0 |
| Electricians<br>721-281-026<br>729-281-030<br>824-281-014<br>825-281-034 | 1,939 | 12.4 | 89.1 | 10.2 | 0.2 | 0.1 | 0.2 | 100.0 | 0.0 |
| Electronics Technicians<br>827-281-014<br>828-281-022<br>829-381-010 | 52 | 0.3 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 |

#The rows under "Race/Ethnic Group" add up to 100%.

TABLE A-2 (Continued)

APPRENTICE REGISTRATIONS IN SELECTED OCCUPATIONAL GROUPS, END OF PERIOD 1974, BY RACE/ETHNIC GROUP AND SEX

| Occupational Group/DOT Code | Number | Percent of All Illinois Apprentices | Race/Ethnic Group (Percent) | | | | | Sex (Percent) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | White | Black | Oriental | American Indian | Spanish American | Male | Female |
| Maintenance Mechanics<br>624-281-014<br>625-281-034<br>625-281-010<br>627-281-010<br>629-281-050<br>630-281-046<br>631-281-014<br>637-281-034<br>638-281-022 | 56 | 0.3 | 85.7 | 14.3 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| Office Machine Servicemen*<br>633-281-038 | 40 | 0.2 | 95.5 | 2.5 | 0.0 | 2.5 | 0.0 | 97.5 | 2.5 |
| Painters<br>840-781-010 | 423 | 2.7 | 77.5 | 17.5 | 0.2 | 0.5 | 4.3 | 100.0 | 0.0 |
| Pipefitters<br>862-381-042<br>862-381-050 | 619 | 3.9 | 85.6 | 12.3 | 0.0 | 0.8 | 1.3 | 100.0 | 0.0 |
| Roofers<br>866-381-010 | 217 | 1.4 | 77.9 | 18.4 | 0.0 | 0.0 | 3.7 | 100.0 | 0.0 |
| Toolmakers, Diemakers<br>601-280-062<br>601-280-014<br>601-280-058<br>601-281-010<br>601-281-046<br>601-281-014<br>603-885-110 | 1,064 | 6.8 | 96.3 | 2.0 | 0.2 | 0.1 | 1.3 | 99.9 | 0.1 |

Source: The Equal Employment Opportunity Commission (EEOC). The EECO data was keyed by DOT Code to the Bureau of Apprenticeship and Training (BAT) Illinois data (see Table A-3). This required some interpretation, as the EEOC combined some of the data it acquired from the BAT. A "*" indicates that a large discrepancy exists between EEOC data and the data on Table A-3, which shows 797 Office Machine Servicemen.

TABLE A-3

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL | DOT | | B O P* | CANCEL | COMPLT | ADDED | E O P** |
|---|---|---|---|---|---|---|---|
| 01-281-010 | Draftsman Architectural | | 8 | | | | 8 |
| 03-281-010 | Draftsman Electrical | | 27 | | 1 | | 26 |
| 07-081-058 | Small-Tool Designer | | 12 | 1 | 1 | 3 | 13 |
| 07-281-014 | Draftsman Mechanical | | 21 | 1 | | | 20 |
| 17-281-026 | Design Draftsman Electrom | | 2 | | | | 2 |
| 17-281-034 | Detailer | | 10 | 1 | | | 9 |
| 17-281-078 | Draftsman Topographical | | | | | | |
| 78-368-026 | Prosthetist-Orthotist | | 3 | | | 1 | 4 |
| 143-062-034 | Photographer Commercial | | 3 | 1 | 2 | | |
| 239-587-010 | Mailer | | 3 | | | | 3 |
| 313-381-018 | Cook | | 16 | 1 | 2 | | 13 |
| 313-381-034 | Cook Pastry | | 3 | | | | 3 |
| 316-884-018 | Meat Cutter | | 939 | | 1 | 1 | 939 |
| 330-371-010 | Barber | | 5 | 2 | 3 | | |
| 362-782-010 | Dry Cleaner | | | | | | |
| 365-381-014 | Shoe Repairman | | 1 | | | | 1 |
| 373-884-014 | Firefighter | | 111 | | 4 | 7 | 114 |
| 500-380-010 | Plater | | 2 | | | | 2 |
| 504-782-026 | Heat Treater | | 1 | | | | 1 |
| 512-687-010 | Pyrometer Man | | 1 | | | | 1 |
| 518-381-014 | Coremaker | | 3 | | 1 | | 2 |
| 518-381-022 | Molder | | 4 | | 2 | | 2 |
| 525-381-010 | Butcher All-Round | | 4 | | 1 | | 3 |
| 526-781-010 | Baker | | 4 | 1 | 1 | | 2 |

*BOP: Beginning of Period
**EOP: End of Period

Source: Bureau of Apprenticeship and Training

TABLE A-3 (Continued)

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL DOT | | B O P | CANCEL | COMPLT | ADDED | E O P |
|---|---|---|---|---|---|---|
| 550-782-042 | Mixer | 1 | 1 | | | |
| 575-781-018 | Glass Blower | | | | | |
| 600-280-018 | Instrument Maker | 1 | | | | 1 |
| 600-280-030 | Machinist | 481 | 54 | 32 | 31 | 426 |
| 600-280-042 | Machinist Experimental | 7 | | | | 7 |
| 600-280-050 | Machinist Automotive | 111 | 13 | 1 | 2 | 99 |
| 600-280-054 | Maintenance Machinist | 123 | 5 | 11 | 10 | 117 |
| 601-280-014 | Die Maker Plastic Molding | 6 | | | 2 | 8 |
| 601-280-030 | Die Sinker | 59 | 7 | 2 | 1 | 51 |
| 601-280-058 | Tool Maker | 58 | 1 | 3 | 2 | 56 |
| 601-280-062 | Tool-and-Die Maker | 911 | 153 | 79 | 69 | 748 |
| 601-281-010 | Die Maker Bench Stamping | 3 | | | | 3 |
| 601-281-046 | Tool Maker Bench | 2 | | | | 2 |
| 601-381-014 | Die Finisher | 3 | | | | 3 |
| 603-885-110 | Tool Grinder | 3 | | | | 3 |
| 604-780-022 | | | | | | |
| 604-782-022 | Screw-Mac Set-up Op Pro | 3 | 2 | 1 | 2 | 2 |
| 610-381-010 | Blacksmith | 8 | | 1 | 1 | 8 |
| 619-280-014 | Ornamental Metal Worker | | | | | |
| 619-380-022 | Metal Fabricator | 2 | 2 | | | |
| 619-380-026 | Metal Fabricator Apprentice | 8 | 1 | | | 7 |
| 619-782-090 | Spinner | 1 | 1 | | | |
| 620-281-014 | Automobile Mechanic | 326 | 43 | 16 | 18 | 285 |
| 620-281-046 | Construction Equipment Mechanic | | | | | |

TABLE A-3 (Continued)

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL DOT | | B O P | CANCEL | COMPLT | ADDED | E O P |
|---|---|---|---|---|---|---|
| 620-281-070 | Mechanic Industrial Truck | 8 | | | | 8 |
| 620-281-086 | Motorcycle Repairman | 2 | 1 | | | 1 |
| 620-381-010 | Automobile Radiator Man | 1 | | | | 1 |
| 620-381-014 | | | | | | |
| 624-281-010 | Farm Equipment Mechanic | 2 | 1 | | | 1 |
| 625-281-010 | Diesel Mechanic | 8 | 2 | | 1 | 7 |
| 625-281-034 | Gasoline Engine Repairman | 1 | | | | 1 |
| 627-281-010 | Composing Room Machinist | 2 | 1 | | | 1 |
| 629-281-050 | Machine Adjuster | 3 | | | | 3 |
| 630-281-046 | Pump Serviceman | 1 | | | | 1 |
| 631-281-014 | Powerhouse Repairman | 1 | | | | 1 |
| 633-281-030 | Office Machine Serviceman | 797 | 5 | 4 | 3 | 791 |
| 633-281-038 | Scale Mechanic | 2 | | | | 2 |
| 637-281-034 | Refrigeration Mechanic | 9 | | | | 9 |
| 638-281-022 | Maintenance Mechanic | 29 | 1 | | 2 | 30 |
| 638-281-034 | Millwright | 160 | 3 | 5 | 7 | 159 |
| 649-782-010 | Cutting & Creasing Pressman | 80 | 11 | 5 | 12 | 76 |
| 651-782-010 | Cylinder-Press Man | 11 | | 3 | | 8 |
| 651-782-030 | Lithographic Proofer | 7 | 2 | | | 5 |
| 651-782-042 | Offset Pressman | 125 | 10 | 22 | 6 | 99 |
| 651-782-050 | Offset Proof Press Operator | 8 | 1 | 2 | | 5 |
| 651-782-054 | Platen Pressman | | | | | |
| 651-782-074 | Rotogravure Pressman | | | | | |
| 651-782-078 | Steel Die Printer | 2 | 1 | | 2 | 3 |

TABLE A-3 (Continued)

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL DOT | | B O P | CANCEL | COMPLT | ADDED | E O P |
|---|---|---|---|---|---|---|
| 651-782-094 | Web-Press Man | 32 | | 21 | | 11 |
| 651-886-010 | Cylinder Press Feeder | 509 | | | | 509 |
| 660-280-010 | Cabinetmaker | 2 | | | | 2 |
| 661-281-018 | Patternmaker Wood | 42 | | 3 | 2 | 41 |
| 661-380-010 | Model Maker Wood | 3 | | | | 3 |
| 669-380-010 | Millman (Woodwork) | 2 | | 1 | | 1 |
| 675-380-010 | Precision-Lens Grinder | | | | | |
| 693-281-018 | Patternmaker Metal Bench | 1 | 1 | | 10 | 10 |
| 693-381-018 | Model Maker (ACFT MFG | 6 | 2 | 2 | | 2 |
| 699-782-022 | Die Cutter | 27 | 7 | 1 | 1 | 20 |
| 700-281-010 | Jeweler | 2 | | | | 2 |
| 704-381-034 | Engraver Hand | 1 | 1 | | | |
| 704-884-018 | Engraver Pantograph | 15 | | 4 | 2 | 13 |
| 705-884-074 | Polisher and Buffer | 1 | 1 | | | |
| 709-281-014 | Locksmith | 1 | | | | 1 |
| 710-281-058 | Instrument Repairman | 9 | | | 2 | 11 |
| 712-281-018 | Orthopedic-Appliance Technician | 5 | 2 | | | 3 |
| 712-381-014 | Dental Laboratory Technician | 119 | 2 | 2 | 6 | 121 |
| 712-381-038 | Orthodontic Technician | 1 | | 1 | | |
| 713-381-014 | Optician | 21 | 1 | | | 20 |
| 713-381-018 | Optician Apprentice | 2 | | | | 2 |
| 714-281-014 | Camera Repairman | 1 | | | 1 | 2 |
| 715-281-030 | Watchmaker | 1 | | | | 1 |
| 720-281-018 | Television Service Repairman | 9 | | 1 | | 8 |

TABLE A-3 (Continued)

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL DOT | | B O P | CANCEL | COMPLT | ADDED | E O P |
|---|---|---|---|---|---|---|
| 721-281-026 | Electric Motor Repairman | 3 | | 1 | | 2 |
| 729-281-030 | Electric Instrument Repairman | | | | 3 | 3 |
| 739-381-010 | Canvas Worker | 1 | 1 | | | |
| 739-381-022 | Die Maker (Paper Goods) | 17 | 3 | 1 | 5 | 18 |
| 771-381-014 | Stonecutter Hand | 1 | | | | 1 |
| 777-381-018 | Model & Mold Maker Plaster | 3 | | | | 3 |
| 780-381-010 | Automobile Upholsterer | 3 | | | | 3 |
| 780-381-018 | Furniture Upholsterer | 3 | 1 | | | 2 |
| 780-381-030 | Upholsterer | 7 | | | | 7 |
| 781-381-022 | Patternmaker | 8 | 1 | | 2 | 9 |
| 789-884-054 | Leather Worker | | | | | |
| 801-781-010 | Structural Steel Worker | 408 | 7 | 29 | 12 | 384 |
| 804-281-010 | Sheet-Metal Worker | 849 | 12 | 101 | 27 | 763 |
| 805-281-010 | Boilermaker | 31 | 2 | 2 | 6 | 33 |
| 806-381-042 | Shipfitter | | | | | |
| 807-381-010 | Automobile Body Repairman | 59 | 13 | 2 | 1 | 45 |
| 809-381-018 | Ornamental Iron Worker | 105 | 2 | 10 | 14 | 107 |
| 812-884-014 | Welder-Combination | | | | | |
| 820-281-018 | Electrician Powerhouse | 1 | | | | 1 |
| 821-281-010 | Lineman | 25 | | 1 | 2 | 26 |
| 822-281-010 | Automatic Equipment Technician | 16 | 10 | | | 6 |
| 822-281-018 | Combination Man | 17 | | 4 | 4 | 17 |
| 822-381-018 | Central Office Installer | 31 | | 12 | 1 | 20 |
| 822-381-026 | Lineman (Tel & Tel) | 19 | 3 | 3 | 4 | 17 |

TABLE A-3 (Continued)

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL DOT | | B O P | CANCEL | COMPLT | ADDED | E O P |
|---|---|---|---|---|---|---|
| 822-381-034 | Private Branch Exchange Installer | 23 | 6 | 12 | | 5 |
| 823-281-014 | Electrician Radio | 9 | | | | 9 |
| 824-281-014 | Electrician | 1905 | 20 | 168 | 116 | 1833 |
| 825-281-034 | Electrician Locomotive | 30 | | 1 | 5 | 34 |
| 827-281-014 | Electric Appliance Serviceman | 10 | | 2 | | 8 |
| 828-281-022 | Electronics Mechanic | 23 | 3 | | | 20 |
| 829-281-022 | Electrical Repairman | 152 | 3 | 12 | 18 | 155 |
| 829-381-010 | Cable Splicer | 15 | | 2 | | 13 |
| 840-781-010 | Painter (Const) | 414 | 28 | 48 | 67 | 405 |
| 841-781-014 | Paperhanger | | | | | |
| 842-781-010 | Lather | 11 | 2 | 1 | | 8 |
| 842-781-018 | Plasterer | 32 | 1 | | 2 | 33 |
| 844-884-014 | Cement Mason | 267 | 6 | 41 | 19 | 239 |
| 845-781-018 | Painter Automobile | 8 | | 1 | | 7 |
| 859-883-030 | Operating Engineer | 881 | 70 | 8 | 27 | 830 |
| 860-281-014 | Carpenter Maintenance | 19 | | 2 | | 17 |
| 860-381-026 | Carpenter | 2069 | 41 | 67 | 151 | 2112 |
| 861-381-010 | Bricklayer | 478 | 21 | 41 | 40 | 456 |
| 861-781-022 | Stonemason | | | | | |
| 861-781-030 | Terrazzo Worker | | | | | |
| 861-781-038 | Tile Setter | | | | | |
| 862-381-042 | Pipe Fitter | 556 | 6 | 164 | 31 | 417 |
| 862-381-050 | Pipe Fitter Maintenance | 63 | 1 | 3 | | 59 |
| 862-381-070 | Pipe Fitter Sprinkler Systems | 212 | 3 | 29 | | 180 |

TABLE A-3 (Continued)

APPRENTICE REGISTRATIONS, ILLINOIS, 1975

| OCCUPATIONAL DOT | | B O P | CANCEL | COMPLT | ADDED | E O P |
|---|---|---|---|---|---|---|
| 862-381-074 | Plumber | 894 | 6 | 81 | 47 | 854 |
| 862-381-082 | Plumber Maintenance | 6 | | | | 6 |
| 863-884-026 | Insulation Worker | 196 | | | | 196 |
| 864-781-010 | Floor Layer | 2 | | | | 2 |
| 864-781-014 | Floor Layer Apprentice | | | | 1 | 1 |
| 865-781-010 | Glazier | 26 | 4 | 7 | | 15 |
| 865-884-010 | Glass Installer | 2 | | | | 2 |
| 866-381-010 | Roofer | 217 | 5 | 5 | 14 | 221 |
| 899-281-018 | Maintenance Man Factory or Mill | 3 | | | | 3 |
| 921-280-010 | Rigger | 17 | 1 | 2 | | 14 |
| 950-782-054 | Stationary Engineer | | 1 | | 6 | 5 |
| 963-281-018 | | 2 | | | | 2 |
| 970-381-046 | Painter Sign | 19 | | | 5 | 24 |
| 971-381-014 | Etcher Photoengraving | 1 | | | | 1 |
| 971-381-018 | Photoengraver | 7 | 2 | | | 5 |
| 971-381-046 | Stripper Apprentice | | | | | |
| 972-381-014 | Transferrer | 1 | 1 | | | |
| 972-382-010 | Photographer Lithographic | 42 | 3 | 27 | 3 | 15 |
| 973-381-010 | Compositor | 28 | 7 | 1 | 1 | 21 |
| 974-381-010 | Electrotyper | 1 | | | | 1 |
| 975-782-014 | Stereotyper | 2 | | | | 2 |
| 977-884-014 | Bookbinder | 138 | 1 | 7 | | 130 |
| No answer | | | | | 1 | 1 |
| TOTAL | | 15759 | 644 | 1140 | 842 | 14817 |

TABLE A-4

SUMMARY DESCRIPTION OF PROGRAM SPONSORS SURVEYED

| | Number N=149 | Percent |
|---|---|---|
| **Program Status** | | |
| Active | 101 | 68 |
| Inactive | 30 | 20 |
| Cancelled | 13 | 8 |
| No response | 5 | 3 |
| **Program Sponsorship** | | |
| Joint | 58 | 39 |
| Non-Joint | 86 | 58 |
| No response | 5 | 3 |
| **Respondent Affiliation** | | |
| Apprentice Coordinator | 33 | 22 |
| JAC/Labor | 9 | 6 |
| JAC/Management | 9 | 6 |
| Employer | 44 | 30 |
| Journeyman | 1 | 0 |
| Other | 8 | 6 |
| No response | 45 | 30 |
| **Region** | | |
| Berkeley | 21 | 14 |
| Des Plaines | 37 | 25 |
| Lansing | 20 | 13 |
| Peoria | 10 | 7 |
| Rockford | 22 | 15 |
| Rock Island | 18 | 12 |
| Springfield | 10 | 7 |
| Wood River | 6 | 4 |
| No response | 5 | 4 |
| **Program Size (Number of Apprentices)** | | |
| 0 to 4 | 102 | 68 |
| 5 to 20 | 21 | 14 |
| Over 20 | 20 | 14 |
| No response | 6 | 4 |

TABLE A-5

BEGINNING APPRENTICE WAGE
AS PERCENT OF JOURNEYMAN RATE
FOR PROGRAM SPONSORS SURVEYED

| % OF JOURNEYMAN RATE | PERCENT<br>N=149 |
|---|---|
| 0 - 30% | 2.7 |
| 31 - 40% | 4.7 |
| 41 - 50% | 28.9 |
| 51 - 60% | 20.8 |
| 61 - 70% | 7.4 |
| 71 - 80% | 7.4 |
| 81 - 100% | 4.7 |
| No response | 23.5 |
| TOTAL | 100.1 |

TABLE A-6

RELATED INSTRUCTION PROVIDER BY PROGRAM SPONSORSHIP AND PROGRAM SIZE FOR PROGRAM SPONSORS SURVEYED

| Instruction Provider | Number of Programs N=193 | Sponsor Responses (%) Total* N=193 | Joint N=87 | Non-Joint N=101 | Program Size Responses (%) 0 to 4 N=131 | 5 to 20 N=26 | Over 20 N=36 |
|---|---|---|---|---|---|---|---|
| Secondary School | 12 | 6.2 | 5.8 | 7.9 | 8.4 | 0.0 | 11.1 |
| Vocational School | 11 | 5.7 | 3.4 | 7.9 | 6.9 | 7.7 | 0.0 |
| Community College | 36 | 18.6 | 16.0 | 2.8 | 18.3 | 23.6 | 16.6 |
| Labor Organization | 20 | 10.4 | 18.4 | 2.0 | 3.8 | 19.1 | 22.2 |
| Employer | 45 | 23.3 | 21.8 | 24.8 | 26.0 | 19.1 | 13.9 |
| Correspondence School | 12 | 6.2 | 10.3 | 3.0 | 5.3 | 11.5 | 5.6 |
| Other | 29 | 15.0 | 18.4 | 12.9 | 13.0 | 19.1 | 19.4 |
| No response | 28 | 14.5 | 5.8 | 19.8 | 18.3 | 0.0 | 11.1 |
| Total Percent | | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*The following shows the distribution of related instruction providers when non-responses are omitted from the "Total" column of sponsor responses:

| | Total N=165 |
|---|---|
| Secondary School | 7.3 |
| Vocational School | 6.6 |
| Community College | 21.8 |
| Labor Organization | 12.2 |
| Employer | 27.2 |
| Correspondence School | 7.3 |
| Other | 17.6 |
| | 100.0 |

TABLE A-7

SURVEYED PROGRAM SPONSORS' RATING OF RELATED INSTRUCTION BY RELATED INSTRUCTION PROVIDER

| | | RELATED INSTRUCTION PROVIDER | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PERCENT | SECOND-ARY SCHOOL | VOCA-TIONAL SCHOOL | COMMU-NITY COLLGE | LABOR ORGANI-ZATION | EM-PLOYER | CORRES-PONDNCE SCHOOL | OTHER |
| | N=165 | N=12 | N=11 | N=36 | N=20 | N=45 | N=12 | N=29 |
| JOB-RELATEDNESS | | | | | | | | |
| Outstanding | 18.1 | 8.3 | 9.1 | 19.4 | 40.0 | 28.9 | 33.3 | 20.7 |
| Good | 43.0 | 66.7 | 54.6 | 44.4 | 45.0 | 55.6 | 50.0 | 48.3 |
| Satisfactory | 11.4 | 16.7 | 18.2 | 19.4 | 10.0 | 4.4 | 16.7 | 13.8 |
| Needs improvement | 8.7 | 8.3 | | 16.7 | 5.0 | 11.1 | | 10.3 |
| No response | 18.8 | | 18.2 | | | | | 6.9 |
| TOTAL | 100.0 | 100.0 | 100.1 | 99.9 | 100.0 | 100.0 | 100.0 | 100.0 |
| ORGANIZATION | | | | | | | | |
| Outstanding | 16.1 | 16.7 | 9.1 | 19.4 | 35.0 | 15.6 | 25.0 | 24.1 |
| Good | 38.9 | 41.7 | 63.6 | 41.7 | 45.0 | 48.9 | 41.7 | 37.9 |
| Satisfactory | 19.5 | 16.7 | 9.1 | 27.8 | 20.0 | 24.4 | 25.0 | 24.1 |
| Needs improvement | 5.4 | 16.7 | | 11.1 | | 6.7 | 8.3 | 6.9 |
| No response | 20.1 | 8.3 | 18.2 | | | 4.4 | | 6.9 |
| TOTAL | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 |
| COMPLETENESS | | | | | | | | |
| Outstanding | 12.8 | | | 8.3 | 35.0 | 15.6 | 25.0 | 17.2 |
| Good | 40.9 | 58.3 | 63.6 | 47.2 | 35.0 | 55.6 | 58.3 | 51.7 |
| Satisfactory | 17.5 | 25.0 | 18.2 | 25.0 | 25.0 | 13.3 | 16.7 | 13.8 |
| Needs improvement | 6.7 | | | 16.7 | 5.0 | 6.7 | | 6.9 |
| No response | 22.1 | 16.7 | 18.2 | 2.8 | | 8.9 | | 10.3 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 99.9 |
| AVERAGE SCORE | | | | | | | | |

TABLE A-7 (Continued)

SURVEYED PROGRAM SPONSORS' RATING OF RELATED INSTRUCTION BY RELATED INSTRUCTION PROVIDER

| | | RELATED INSTRUCTION PROVIDER | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PERCENT | SECOND-ARY SCHOOL | VOCA-TIONAL SCHOOL | COMMU-NITY COLLGE | LABOR ORGANI-ZATION | EM-PLOYER | CORRES-PONDNCE SCHOOL | OTHER |
| | N=165 | N=12 | N=11 | N=36 | N=20 | N=45 | N=12 | N=29 |
| **RELEVANCE** | | | | | | | | |
| Outstanding | 13.4 | 8.3 | 9.1 | 8.3 | 30.0 | 17.8 | 16.7 | 13.8 |
| Good | 41.6 | 58.3 | 54.6 | 44.4 | 50.0 | 55.6 | 58.3 | 48.3 |
| Satisfactory | 15.4 | 25.0 | 18.2 | 25.0 | 10.0 | 13.3 | 25.0 | 20.7 |
| Needs improvement | 8.1 | | | 19.4 | 10.0 | 6.7 | | 10.3 |
| No response | 21.5 | 8.3 | 18.2 | 2.8 | | 6.7 | | 6.9 |
| TOTAL | 100.0 | 99.9 | 100.1 | 99.9 | 100.0 | 100.1 | 100.0 | 100.0 |
| **OVERALL QUALITY** | | | | | | | | |
| Outstanding | 14.1 | 8.3 | 9.1 | 5.6 | 35.0 | 17.8 | 25.0 | 20.7 |
| Good | 44.3 | 58.3 | 54.6 | 58.3 | 55.0 | 55.6 | 33.3 | 55.2 |
| Satisfactory | 14.1 | 25.0 | 9.1 | 19.4 | 10.0 | 13.3 | 41.7 | 10.3 |
| Needs improvement | 7.4 | 8.3 | 9.1 | 13.9 | | 8.9 | | 10.3 |
| No response | 20.1 | | 18.2 | 2.8 | | 4.4 | | 3.5 |
| TOTAL | 100.0 | 99.9 | 100.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

TABLE A--

SURVEYED PROGRAM SPONSORS' ASSESSMENT OF EFFECTIVENESS OF APPRENTICE INSTRUCTORS BY RESPONDENT AFFILIATION,

| | | RESPONDENT AFFILIATION | | | | | | SPONSORSHIP | |
|---|---|---|---|---|---|---|---|---|---|
| | PERCENT | APPREN COORD | JAC/ LABOR | JAC/ MGMT | EM- PLOYER | JOURNEY -MAN | OTHER | JOINT | NON- JOINT |
| | N=104 | N=33 | N=9 | N=9 | N=44 | N=1 | N=8 | N=58 | N=86 |
| ON-THE-JOB INSTRUCTORS | | | | | | | | | |
| Outstanding | 11.4 | 15.2 | | | 22.7 | | 12.5 | 8.6 | 14.0 |
| Good | 47.7 | 42.4 | 77.8 | 55.6 | 59.1 | 100.1 | 75.0 | 50.0 | 44.2 |
| Satisfactory | 14.8 | 27.3 | 11.1 | 33.3 | 6.8 | | 12.5 | 22.4 | 10.5 |
| Needs improvement | 3.4 | 6.1 | | 11.1 | 4.5 | | | 3.4 | 3.5 |
| No response | 22.8 | 9.1 | 11.1 | | 6.8 | | | 15.5 | 27.9 |
| TOTAL | 100.1 | 100.1 | 100.0 | 100.0 | 99.9 | 100.1 | 100.0 | 99.9 | 100.1 |
| RELATED INSTRUCTION INSTRUCTORS | | | | | | | | | |
| Outstanding | 16.8 | 30.3 | 33.3 | 22.2 | 13.6 | | 12.5 | 24.1 | 10.5 |
| Good | 39.6 | 36.4 | 55.6 | 55.6 | 52.3 | 100.1 | 50.0 | 48.3 | 34.9 |
| Satisfactory | 15.4 | 24.2 | 11.1 | 11.1 | 13.6 | | 25.0 | 10.3 | 17.4 |
| Needs improvement | 5.4 | 3.0 | | 11.1 | 11.4 | | 12.5 | 3.4 | 7.0 |
| No response | 22.8 | 6.1 | | | 9.1 | | | 13.8 | 30.2 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 99.9 | 100.0 |

TABLE A-5 (continued)

SURVEYED PROGRAM SPONSORS' ASSESSMENT OF EFFECTIVENESS OF APPRENTICE INSTRUCTORS BY RELATED INSTRUCTION PROVIDER

| | | RELATED INSTRUCTION PROVIDER | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PERCENT | SECOND-ARY SCHOOL | VOCA-TIONAL SCHOOL | COMMU-NITY COLLGE | LABOR ORGANI-ZATION | EM-PLOYER | CORRES-PONDNCE SCHOOL | OTHER |
| | N=165 | N=12 | N=11 | N=36 | N=20 | N=45 | N=12 | N=29 |
| ON-THE-JOB INSTRUCTORS | | | | | | | | |
| Outstanding | 11.4 | | 9.1 | 13.9 | 5.0 | 26.7 | 25.0 | 13.8 |
| Good | 47.7 | 83.3 | 63.6 | 61.1 | 60.0 | 55.6 | 41.7 | 51.7 |
| Satisfactory | 14.8 | 8.3 | 9.1 | 16.7 | 25.0 | 6.7 | 25.0 | 24.1 |
| Needs improvement | 3.4 | | 9.1 | 2.8 | 5.0 | 4.4 | 8.3 | 3.5 |
| No response | 22.8 | 8.3 | 9.1 | 5.6 | 5.0 | 6.7 | | 6.9 |
| TOTAL | 100.1 | 99.9 | 100.0 | 100.1 | 100.0 | 100.1 | 100.0 | 100.0 |
| RELATED INSTRUCTION INSTRUCTORS | | | | | | | | |
| Outstanding | 16.8 | | 9.1 | 19.4 | 45.0 | 24.4 | 33.3 | 24.1 |
| Good | 39.6 | 50.0 | 72.7 | 47.2 | 45.0 | 42.2 | 33.3 | 48.3 |
| Satisfactory | 15.4 | 25.0 | | 25.0 | 5.0 | 8.9 | 33.3 | 13.8 |
| Needs improvement | 5.4 | 8.3 | 9.1 | 8.3 | 5.0 | 11.1 | | 6.9 |
| No response | 22.8 | 16.7 | 9.1 | | | 13.3 | | 6.9 |
| TOTAL | 100.0 | 100.0 | 100.0 | 99.9 | 100.0 | 99.9 | 99.9 | 100.0 |

TABLE A-9

SURVEYED PROGRAM SPONSORS'
FREQUENCY OF CONTACT
WITH INDIVIDUALS AND AGENCIES

| | PERCENT<br>N=149 |
|---|---|
| **EMPLOYER** | |
| Regularly | 65.1 |
| Irregularly | 10.1 |
| Never contact | 1.3 |
| No response | 23.5 |
| TOTAL | 100.0 |
| **LABOR ORGANIZATION** | |
| Regularly | 29.5 |
| Irregularly | 14.1 |
| Never contact | 30.9 |
| No response | 25.5 |
| TOTAL | 100.0 |
| **TRADE ASSOCIATION** | |
| Regularly | 26.8 |
| Irregularly | 24.2 |
| Never contact | 24.2 |
| No response | 24.8 |
| TOTAL | 100.0 |
| **RELATED INSTRUCTION PROVIDERS** | |
| Regularly | 37.6 |
| Irregularly | 30.9 |
| Never contact | 6.7 |
| No response | 24.8 |
| TOTAL | 100.0 |

| | PERCENT<br>N=149 |
|---|---|
| **INSTRUCTORS** | |
| Regularly | 44.3 |
| Irregularly | 21.5 |
| Never contact | 10.7 |
| No response | 23.5 |
| TOTAL | 100.0 |
| **BUREAU OF APPRENTICESHIP & TRAINING** | |
| Regularly | 34.2 |
| Irregularly | 33.6 |
| Never contact | 8.7 |
| No response | 23.5 |
| TOTAL | 100.0 |
| **ILLINOIS VOCATIONAL EDUCATION** | |
| Regularly | 6.0 |
| Irregularly | 18.1 |
| Never contact | 51.7 |
| No response | 24.2 |
| TOTAL | 100.0 |
| **OUTREACH AGENCIES** | |
| Regularly | 8.7 |
| Irregularly | 14.1 |
| Never contact | 51.7 |
| No response | 25.5 |
| TOTAL | 100.0 |

TABLE A-9 (Continued)

SURVEYED PROGRAM SPONSORS'
FREQUENCY OF CONTACT
WITH INDIVIDUALS AND AGENCIES

| | PERCENT<br>N=149 |
|---|---|
| **STATE EMPLOYMENT SERVICE** | |
| Regularly | 7.4 |
| Irregularly | 34.2 |
| Never contact | 34.9 |
| No response | 23.5 |
| TOTAL | 100.0 |
| **OTHER APPRENTICE-SHIP PROGRAMS** | |
| Regularly | 10.7 |
| Irregularly | 26.8 |
| Never contact | 38.3 |
| No response | 24.2 |
| TOTAL | 100.0 |

TABLE A-10 (Continued)

SURVEYED PROGRAM SPONSORS' RATING (QUALITY) OF CONTACT WITH INDIVIDUALS AND AGENCIES

| | PERCENT<br>N=149 |
|---|---|
| STATE EMPLOYMENT SERVICE | |
| Very helpful | 6.7 |
| Somewhat helpful | 21.5 |
| Not often helpful | 14.8 |
| Often a problem | |
| Never contact | 32.2 |
| No response | 24.8 |
| TOTAL | 100.0 |
| OTHER APPRENTICE-SHIP PROGRAMS | |
| Very helpful | 6.7 |
| Somewhat helpful | 18.8 |
| Not often helpful | 11.4 |
| Often a problem | |
| Never contact | 35.6 |
| No response | 27.5 |
| TOTAL | 100.0 |

TABLE A-11

SURVEYED PROGRAM SPONSORS' RATING OF POTENTIAL TO AID IN IMPROVEMENTS IN APPRENTICESHIP PROGRAM

| | | RESPONDENT AFFILIATION | | | | | | SPONSORSHIP | | PROGRAM SIZE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERCENT | APPREN COORD | JAC/ LABOR | JAC/ MGMT | EMPLOYER | JOURNEY-MAN | OTHER | JOINT | NON-JOINT | 0-4 | 5-20 | OVER 20 |
| | N=104 | N=33 | N=9 | N=9 | N=44 | N=1 | N=8 | N=58 | N=86 | N=102 | N=21 | N=20 |
| **EMPLOYERS** | | | | | | | | | | | | |
| Very helpful | 52.3 | 63.6 | 44.5 | 44.5 | 79.5 | | 62.5 | 62.1 | 45.3 | 49.0 | 57.1 | 60.0 |
| Somewhat helpful | 21.5 | 30.3 | 55.6 | 44.5 | 11.4 | | 25.0 | 22.4 | 19.8 | 16.7 | 33.3 | 30.0 |
| Barrier to improvements | 0.7 | | | 11.1 | | | | | 1.2 | 1.0 | | |
| No response | 25.5 | 6.1 | | | 9.1 | 100.1 | 12.5 | 15.5 | 33.7 | 33.3 | 9.5 | 10.0 |
| TOTAL | 100.0 | 100.0 | 100.1 | 100.1 | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 100.0 |
| **LABOR ORGANIZATIONS** | | | | | | | | | | | | |
| Very helpful | 23.5 | 39.4 | 55.6 | 44.5 | 13.6 | | 50.0 | 43.1 | 8.1 | 12.7 | 28.6 | 65.0 |
| Somewhat helpful | 21.5 | 30.3 | 33.3 | 22.2 | 20.5 | | 25.0 | 20.7 | 20.9 | 17.6 | 42.9 | 15.0 |
| Barrier to improvements | 23.5 | 15.2 | 11.1 | 22.2 | 50.0 | | | 17.2 | 29.1 | 29.4 | 14.3 | 10.0 |
| No response | 31.5 | 15.2 | | 11.1 | 15.9 | 100.1 | 25.0 | 19.0 | 41.9 | 40.2 | 14.3 | 10.0 |
| TOTAL | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 99.9 | 100.1 | 100.0 |
| **TRADE ASSOCIATIONS** | | | | | | | | | | | | |
| Very helpful | 38.3 | 48.5 | 22.2 | 55.6 | 45.5 | | 62.5 | 43.1 | 36.0 | 32.4 | 47.6 | 60.0 |
| Somewhat helpful | 30.2 | 33.3 | 55.6 | 33.3 | 38.6 | | 25.0 | 34.5 | 24.4 | 29.4 | 28.6 | 25.0 |
| Barrier to improvements | 4.0 | 6.1 | 11.1 | 11.1 | 4.5 | | | 5.2 | 3.5 | 3.9 | 4.8 | 5.0 |
| No response | 27.5 | 12.1 | 11.1 | | 11.4 | 100.1 | 12.5 | 17.2 | 36.0 | 34.3 | 19.1 | 10.0 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 | 99.9 | 100.0 | 100.1 | 100.0 |
| **RELATED INSTRUCTION PROVIDERS** | | | | | | | | | | | | |
| Very helpful | 40.9 | 60.6 | 22.2 | 66.7 | 52.3 | | 25.0 | 50.0 | 34.9 | 41.2 | 23.8 | 60.0 |
| Somewhat helpful | 29.5 | 33.3 | 66.7 | 22.2 | 34.1 | | 62.5 | 31.0 | 25.6 | 20.6 | 61.9 | 30.0 |
| Barrier to improvements | 1.3 | | | 11.1 | | | | | 2.3 | 2.0 | | |
| No response | 28.2 | 6.1 | 11.1 | | 11.6 | 100.1 | 12.5 | 19.0 | 37.2 | 36.3 | 14.3 | 10.0 |
| TOTAL | 99.9 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 |

TABLE A-11 (Continued)

SURVEYED PROGRAM SPONSORS' RATING OF POTENTIAL TO AID IN IMPROVEMENTS IN APPRENTICESHIP PROGRAM

| | PERCENT | RESPONDENT AFFILIATION | | | | | | SPONSORSHIP | | PROGRAM SIZE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | APPREN COORD | JAC/ LABOR | JAC/ MGMT | EM- PLOYER | JOURNEY -MAN | OTHER | JOINT | NON- JOINT | 0-4 | 5-20 | OVER 20 |
| | N=104 | N=33 | N=9 | N=9 | N=44 | N=1 | N=8 | N=58 | N=86 | N=102 | N=21 | N=20 |
| **INSTRUCTORS** | | | | | | | | | | | | |
| Very helpful | 49.0 | 69.7 | 33.3 | 77.8 | 65.9 | | 37.5 | 63.8 | 37.2 | 44.1 | 52.4 | 65.0 |
| Somewhat helpful | 22.8 | 24.2 | 66.7 | 11.1 | 22.7 | | 50.0 | 19.0 | 24.4 | 18.6 | 38.1 | 25.0 |
| Barrier to improvements | 1.3 | | | 11.1 | | | | | 2.3 | 2.0 | | |
| No response | 26.8 | 6.1 | | | 11.4 | 100.1 | 12.5 | 17.2 | 36.0 | 35.3 | 9.5 | 10.0 |
| TOTAL | 99.9 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 | 99.9 | 100.0 | 100.0 | 100.0 |
| **BUREAU OF APPRENTICE-SHIP & TRAINING** | | | | | | | | | | | | |
| Very helpful | 43.0 | 72.7 | 66.7 | 77.8 | 47.7 | | 37.5 | 58.6 | 33.7 | 35.3 | 57.1 | 70.0 |
| Somewhat helpful | 23.5 | 21.2 | 22.2 | 11.1 | 29.5 | | 37.5 | 24.1 | 19.8 | 21.6 | 23.8 | 20.0 |
| Barrier to improvements | 4.0 | | 11.1 | 11.1 | 4.5 | | | 1.7 | 5.8 | 5.9 | | |
| No response | 29.5 | 6.1 | | | 18.2 | 100.1 | 25.0 | 15.5 | 40.7 | 37.3 | 19.1 | 10.0 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 100.1 | 100.0 | 99.9 | 100.0 | 100.1 | 100.0 | 100.0 |
| **ILLINOIS VOCATIONAL EDUCATION** | | | | | | | | | | | | |
| Very helpful | 12.1 | 18.2 | | 44.5 | 13.6 | | 12.5 | 15.5 | 9.3 | 13.7 | | 15.0 |
| Somewhat helpful | 38.9 | 51.5 | 55.6 | 33.3 | 52.3 | | 37.5 | 46.6 | 31.4 | 31.4 | 66.7 | 40.0 |
| Barrier to improvements | 13.4 | 9.1 | 33.3 | 11.1 | 13.6 | | 25.0 | 13.8 | 12.8 | 11.8 | 9.5 | 25.0 |
| No response | 35.6 | 21.2 | 11.1 | 11.1 | 20.5 | 100.1 | 25.0 | 24.1 | 46.5 | 43.1 | 23.8 | 20.0 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **OUTREACH AGENCIES** | | | | | | | | | | | | |
| Very helpful | 9.4 | 15.2 | 11.1 | 44.5 | 4.5 | | 12.5 | 15.5 | 3.5 | 5.9 | 4.8 | 25.0 |
| Somewhat helpful | 32.2 | 51.5 | 33.3 | 33.3 | 38.6 | | 37.5 | 37.9 | 25.6 | 26.5 | 47.6 | 35.0 |
| Barrier to improvements | 20.8 | 15.2 | 33.3 | 11.1 | 31.8 | | 25.0 | 20.7 | 22.1 | 21.6 | 19.1 | 25.0 |
| No response | 37.6 | 18.2 | 22.2 | 11.1 | 25.0 | 100.1 | 25.0 | 25.9 | 48.8 | 46.1 | 28.6 | 15.0 |
| TOTAL | 100.0 | 100.1 | 99.9 | 100.0 | 99.9 | 100.1 | 100.0 | 100.0 | 100.0 | 100.1 | 100.1 | 100.0 |

TABLE A-11 (Continued)

SURVEYED PROGRAM SPONSORS' RATING OF POTENTIAL TO AID IN IMPROVEMENTS IN APPRENTICESHIP PROGRAM

| | | RESPONDENT AFFILIATION | | | | | | SPONSORSHIP | | PROGRAM SIZE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERCENT | APPREN COORD | JAC/ LABOR | JAC/ MGMT | EM- PLOYER | JOURNEY -MAN | OTHER | JOINT | NON- JOINT | 0-4 | 5-20 | OVER 20 |
| | N=104 | N=33 | N=9 | N=9 | N=44 | N=1 | N=8 | N=58 | N=86 | N=102 | N=21 | N=20 |
| STATE EMPLOYMENT SERVICE | | | | | | | | | | | | |
| Very helpful | 13.4 | 30.3 | | 66.7 | 6.8 | | 12.5 | 22.4 | 7.0 | 11.8 | 4.8 | 30.0 |
| Somewhat helpful | 36.2 | 36.4 | 77.8 | 22.2 | 50.0 | | 37.5 | 41.4 | 30.2 | 31.4 | 52.4 | 35.0 |
| Barrier to improvements | 17.5 | 18.2 | 11.1 | 11.1 | 22.7 | | 25.0 | 15.5 | 18.6 | 16.7 | 19.1 | 20.0 |
| No response | 32.9 | 15.2 | 11.1 | | 20.5 | 100.1 | 25.0 | 20.7 | 44.2 | 40.2 | 23.8 | 15.0 |
| TOTAL | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.1 | 100.0 | 100.0 | 100.0 | 100.1 | 100.1 | 100.0 |

TABLE A-12

PROGRAM SPONSORS' ASSESSMENT OF PROBLEMS IN APPRENTICESHIP*

| Problem | Serious | Moderate | None |
|---|---|---|---|
| Access to apprenticeship: | | | |
| For handicapped | 17.5 | 28.9 | 28.2 |
| For women | 8.7 | 23.5 | 42.3 |
| For minority persons | 4.0 | 13.4 | 59.1 |
| For veterans | 1.3 | 10.1 | 65.1 |
| Coordination with: | | | |
| Labor organizations | 10.7 | 16.1 | 43.6 |
| Illinois Vocational Education | 5.4 | 20.1 | 44.3 |
| Related instruction providers | 4.7 | 20.1 | 50.3 |
| State Employment Service | 4.7 | 15.4 | 51.0 |
| Trade associations | 3.4 | 16.8 | 53.7 |
| Employers | 3.4 | 16.8 | 55.7 |
| Bureau of Apprenticeship and Training | 2.0 | 8.1 | 63.8 |
| Related instruction: | | | |
| School budget | 8.7 | 25.5 | 40.3 |
| Relationship with OJT | 8.1 | 23.5 | 46.3 |
| School facilities | 7.4 | 22.1 | 47.0 |
| Applicability of training | 6.7 | 30.2 | 40.9 |
| Proximity to instruction source | 6.7 | 22.8 | 45.6 |
| Course materials | 6.0 | 19.5 | 49.0 |
| Completeness of training | 6.0 | 34.2 | 38.3 |
| Involvement with apprenticeship programs | 4.0 | 21.5 | 53.0 |
| On-the-job training: | | | |
| Completeness of training | 7.4 | 27.5 | 43.0 |
| Involvement with apprenticeship programs | 6.7 | 20.1 | 51.7 |
| Relationship with related instruction | 6.7 | 22.8 | 49.0 |
| Applicability of training | 4.7 | 24.8 | 49.7 |

*Rows do not add to 100% because of non-responses.

TABLE A-13

SURVEYED PROGRAM SPONSORS' REACTIONS TO THE ESTABLISHMENT OF A STATE APPRENTICESHIP COUNCIL IN ILLINOIS BY RESPONDENT AFFILIATION, SPONSORSHIP AND PROGRAM SIZE

| | | RESPONDENT AFFILIATION | | | | | | SPONSORSHIP | | PROGRAM SIZE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERCENT | APPREN COORD | JAC/ LABOR | JAC/ MGMT | EMPLOYER | JOURNEY-MAN | OTHER | JOINT | NON-JOINT | 0-4 | 5-20 | OVER 20 |
| | N=104 | N=33 | N=9 | N=9 | N=44 | N=1 | N=8 | N=58 | N=86 | N=102 | N=21 | N=20 |
| REACTION | | | | | | | | | | | | |
| Favor strongly | 10.1 | 9.1 | | 11.1 | 13.6 | | 12.5 | 12.1 | 8.1 | 10.8 | 4.8 | 10.0 |
| Favor | 15.4 | 9.1 | | 11.1 | 27.3 | | 37.5 | 12.1 | 18.6 | 16.7 | 19.1 | 10.0 |
| Indifferent | 19.5 | 27.3 | 22.2 | 11.1 | 27.3 | | | 15.5 | 22.1 | 19.6 | 33.3 | 5.0 |
| Oppose | 17.5 | 30.3 | 33.3 | 22.2 | 18.2 | | | 25.9 | 12.8 | 14.7 | 14.3 | 35.0 |
| Oppose strongly | 13.4 | 18.2 | 22.2 | 33.3 | 9.1 | | 37.5 | 17.2 | 8.1 | 5.9 | 14.3 | 40.0 |
| No response | 24.2 | 6.1 | 22.2 | 11.1 | 4.5 | 100.1 | 12.5 | 17.2 | 30.2 | 32.4 | 14.3 | |
| TOTAL | 100.1 | 100.1 | 99.9 | 99.9 | 100.0 | 100.1 | 100.0 | 100.0 | 99.9 | 100.1 | 100.1 | 100.0 |

TABLE A-14

SEX OF APPRENTICES SURVEYED

| | Number N=267 | Percent |
|---|---|---|
| Male | 260 | 97 |
| Female | 7 | 3 |
| Total Percent | | 100 |

TABLE A-15

RACE OF APPRENTICES SURVEYED

| | Number N=266 | Percent |
|---|---|---|
| White | 224 | 84 |
| Black | 26 | 10 |
| American Indian | 5 | 2 |
| Spanish Origin | 9 | 3 |
| Oriental | 2 | 1 |
| Total Percent | | 100 |

TABLE A-16

LOCATION CLOSEST TO WORK OF APPRENTICES SURVEYED, BY RACE/ETHNIC GROUP

| | | | Race/Ethnic Group (Percent) | | | | |
|---|---|---|---|---|---|---|---|
| | Number N=266 | Percent | White N=224 | Black N=26 | American Indian N=5 | Spanish Origin N=9 | Oriental N=2 |
| City of Chicago | 25 | 9 | 8 | 12 | 20 | 22 | 0 |
| Chicago suburban area | 97 | 36 | 33 | 58 | 20 | 67 | 50 |
| Peoria | 28 | 11 | 12 | 4 | 0 | 0 | 0 |
| Rockford | 19 | 7 | 7 | 8 | 20 | 0 | 0 |
| Rock Island | 18 | 7 | 7 | 4 | 0 | 11 | 0 |
| Springfield | 13 | 5 | 5 | 4 | 20 | 0 | 0 |
| Wood River | 66 | 25 | 27 | 12 | 20 | 0 | 50 |
| Total Percent | | 100 | 100 | 100 | 100 | 100 | 100 |

TABLE A-17

TITLE OF APPRENTICESHIP FOR APPRENTICES SURVEYED BY RACE/ETHNIC GROUP

| | | | Race/Ethnic Group (Percent) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Number N=262 | Percent | White N=221 | Black N=25 | American Indian N=5 | Spanish Origin N=9 | Oriental N=2 | Total Percent |
| Operating Engineer 859-883-030* | 72 | 27 | 76 | 15 | 3 | 1 | 1 | 100 |
| Pipefitter 862-381-042 | 37 | 14 | 89 | 5 | 0 | 5 | 0 | 100 |
| Millwright 638-281-034 | 28 | 11 | 86 | 7 | 4 | 0 | 4 | 100 |
| Plumber 862-381-074 | 22 | 8 | 95 | 5 | 0 | 0 | 0 | 100 |
| Machinist 600-800-030 | 20 | 8 | 80 | 20 | 0 | 0 | 0 | 100 |
| Tool and Die Maker 601-280-062 | 17 | 6 | 100 | 0 | 0 | 0 | 0 | 100 |
| Dental Lab Technician 721-381-014 | 16 | 6 | 88 | 0 | 0 | 13 | 0 | 100 |
| Carpenter 860-381-026 | 11 | 4 | 91 | 0 | 9 | 0 | 0 | 100 |
| Electrician 824-281-014 | 9 | 3 | 89 | 0 | 0 | 11 | 0 | 100 |
| Sheet Metal Worker 804-281-010 | 7 | 3 | 43 | 29 | 14 | 14 | 0 | 100 |
| Tool Maker 601-280-058 | 4 | 2 | 75 | 25 | 0 | 0 | 0 | 100 |
| Mechanic 620-281-014 | 4 | 2 | 75 | 25 | 0 | 0 | 0 | 100 |
| Bricklayer 861-381-010 | 3 | 1 | 67 | 33 | 0 | 0 | 0 | 100 |
| Machinist 600-280-042 | 2 | 1 | 100 | 0 | 0 | 0 | 0 | 100 |
| Hydraulics 621-281-042 | 2 | 1 | 100 | 0 | 0 | 0 | 0 | 100 |
| Maintenance Mechanic 632-281-022 | 2 | 1 | 100 | 0 | 0 | 0 | 0 | 100 |
| Maintenance 899-281-018 | 2 | 1 | 100 | 0 | 0 | 0 | 0 | 100 |
| Wood Pattern and Die Maker 661-281-018 | 1 | 0 | 100 | 0 | 0 | 0 | 0 | 100 |
| Pattern Maker 781-381-022 | 1 | 0 | 100 | 0 | 0 | 0 | 0 | 100 |
| Electrician 829-281-022 | 1 | 0 | 100 | 0 | 0 | 0 | 0 | 100 |
| Maintenance Pipefitter 862-381-050 | 1 | 0 | 100 | 0 | 0 | 0 | 0 | 100 |

*Dictionary of Occupational Titles code.

TABLE A-18

YEAR OF APPRENTICE IN THE APPRENTICESHIP PROGRAM FOR APPRENTICES SURVEYED

| | Number N=271 | Percent |
|---|---|---|
| First year | 46 | 17 |
| Second year | 68 | 25 |
| Third year | 67 | 25 |
| Fourth year | 82 | 30 |
| Fifth year | 7 | 3 |
| Sixth year | 1 | 0 |

TABLE A-19

EDUCATION LEVEL OF APPRENTICES SURVEYED

| | Number N=271 | Percent |
|---|---|---|
| 8th grade or less | 0 | 0 |
| Grades 9 to 11 | 12 | 4 |
| Graduated high school | 169 | 62 |
| 1 or 2 years of college | 78 | 29 |
| 3 or 4 years of college | 8 | 3 |
| Graduated college | 4 | 1 |
| College graduate work | 0 | 0 |

TABLE A-20

RACE/ETHNIC GROUP OF APPRENTICES SURVEYED, BY AGE

| | Number N=266 | Percent | Age (Percent) Under 18 N=0 | 18-21 N=37 | 22-25 N=106 | 26-29 N=78 | 30 & over N=45 | Total Percent |
|---|---|---|---|---|---|---|---|---|
| White | 224 | 84 | 0 | 15 | 42 | 29 | 14 | 100 |
| Black | 26 | 10 | 0 | 12 | 27 | 23 | 38 | 100 |
| American Indian | 5 | 2 | 0 | 20 | 40 | 20 | 20 | 100 |
| Spanish Origin | 9 | 3 | 0 | 0 | 33 | 44 | 22 | 100 |
| Oriental | 2 | 1 | 0 | 0 | 0 | 1 | 2 | 100 |

TABLE A-21

HOW APPRENTICES SURVEYED FELT ABOUT BEING AN APPRENTICE, BY RACE/ETHNIC GROUP

| | Number N=253 | Percent | Race/Ethnic Group (Percent) White N=213 | Black N=25 | American Indian N=5 | Spanish Origin N=9 | Oriental N=1 |
|---|---|---|---|---|---|---|---|
| Very happy | 63 | 25 | 25 | 20 | 20 | 33 | 0 |
| ↑ | 56 | 22 | 21 | 24 | 60 | 33 | 0 |
| | 86 | 34 | 34 | 44 | 0 | 33 | 0 |
| | 16 | 6 | 7 | 0 | 20 | 0 | 100 |
| | 13 | 5 | 6 | 4 | 0 | 0 | 0 |
| ↓ | 9 | 4 | 4 | 4 | 0 | 0 | 0 |
| Very unhappy | 10 | 4 | 4 | 4 | 0 | 0 | 0 |
| Total Percent | | 100 | 100 | 100 | 100 | 100 | 100 |

TABLE A-22

WAITING PERIOD FOR APPRENTICES SURVEYED FROM ACCEPTANCE UNTIL ENROLLMENT IN TRAINING PROGRAM, BY RACE/ETHNIC GROUP

| | | | Race/Ethnic Group (Percent) | | | | |
|---|---|---|---|---|---|---|---|
| | Number N=244 | Percent | White N=206 | Black N=23 | American Indian N=5 | Spanish Origin N=9 | Oriental N=1 |
| One to three months | 130 | 53 | 57 | 35 | 40 | 33 | 0 |
| Three to six months | 25 | 10 | 10 | 13 | 20 | 11 | 0 |
| Six to nine months | 16 | 7 | 5 | 13 | 20 | 22 | 0 |
| Nine to twelve months | 19 | 8 | 7 | 13 | 0 | 11 | 0 |
| Over twelve months | 54 | 22 | 21 | 26 | 20 | 22 | 100 |
| Total Percent | | 100 | 100 | 100 | 100 | 100 | 100 |

TABLE A-23

RELATED INSTRUCTION PROVIDER FOR APPRENTICES SURVEYED

| | Number N=306 | Percent |
|---|---|---|
| Public secondary school | 27 | 9 |
| Vocational school | 32 | 10 |
| Labor organization | 101 | 33 |
| Community/junior college | 23 | 8 |
| Employer | 91 | 30 |
| Correspondence school | 11 | 4 |
| Tool and Die Institute | 7 | 2 |
| Other | 14 | 5 |
| Total Percent | | 100 |

TABLE A-24

HOW APPRENTICES SURVEYED LEARNED ABOUT APPRENTICESHIP IN THE SKILLED CRAFTS, BY RACE/ETHNIC GROUP

| | Number N=339 | Percent | Race/Ethnic Group (Percent) White N=282 | Black N=156 | American Indian N=120 | Spanish Origin N=100 | Oriental N=150 |
|---|---|---|---|---|---|---|---|
| From family members | 98 | 29 | 32 | 15 | 33 | 0 | 33 |
| From friends | 102 | 30 | 29 | 31 | 33 | 44 | 33 |
| From a high school counselor | 14 | 4 | 4 | 8 | 0 | 0 | 0 |
| From a vocational education teacher (like a shop teacher) | 34 | 10 | 9 | 18 | 0 | 22 | 33 |
| From a community or junior college teacher | 4 | 1 | 1 | 0 | 0 | 0 | 0 |
| From employer/fellow workers | 55 | 16 | 17 | 10 | 17 | 22 | 0 |
| Other | 27 | 8 | 7 | 13 | 0 | 11 | 0 |
| Total Percent | | 100 | 100 | 100 | 100 | 100 | 100 |

TABLE A-25

ATTITUDE OF APPRENTICES SURVEYED TOWARD INFORMATION ABOUT APPRENTICESHIP PROGRAMS, BY RACE/ETHNIC GROUP

| | Number N=254 | Percent | Race/Ethnic Group (Percent) White N=215 | Black N=24 | American Indian N=5 | Spanish Origin N=8 | Oriental N=2 |
|---|---|---|---|---|---|---|---|
| Very helpful | 109 | 43 | 40 | 50 | 60 | 75 | 100 |
| Somewhat helpful | 80 | 31 | 32 | 42 | 20 | 0 | 0 |
| Would have wanted to know more | 50 | 20 | 21 | 8 | 20 | 13 | 0 |
| Not at all helpful | 15 | 6 | 7 | 0 | 0 | 13 | 0 |
| Total Percent | | 100 | 100 | 100 | 100 | 100 | 100 |

TABLE A-26

FACTORS HELPING APPRENTICES SURVEYED TO APPLY FOR AN APPRENTICESHIP POSITION, BY RACE/ETHNIC GROUP

| | Number N=664 | Percent | Race/Ethnic Group (Percent) White N=559 | Black N=70 | American Indian N=10 | Spanish Origin N=21 | Oriental N=4 |
|---|---|---|---|---|---|---|---|
| Recommendation by counselor | 11 | 2 | 1 | 6 | 0 | 0 | 0 |
| Encouragement by family or friends | 83 | 13 | 13 | 11 | 10 | 10 | 25 |
| High cost of higher education | 46 | 7 | 7 | 6 | 10 | 5 | 0 |
| Like to work with my hands | 159 | 24 | 24 | 21 | 30 | 29 | 50 |
| Like the idea of earning while learning | 127 | 19 | 19 | 20 | 10 | 19 | 25 |
| Lack of interest in any other kind of work | 23 | 3 | 3 | 7 | 10 | 0 | 0 |
| Good journeyman wages and fringe benefits | 153 | 23 | 23 | 21 | 30 | 24 | 0 |
| Financial pressures of working right away | 19 | 3 | 3 | 1 | 0 | 5 | 0 |
| Other | 43 | 6 | 7 | 6 | 0 | 10 | 0 |
| Total Percent | | 100 | 100 | 100 | 100 | 100 | 100 |

TABLE A-27

HIGH SCHOOL COURSES APPRENTICES SURVEYED FELT WERE HELPFUL*

| | Number N=782 | Percent |
|---|---|---|
| Mathematics | 383 | 48 |
| Vocational Education | 332 | 43 |
| Other | 25 | 3 |
| None | 42 | 5 |
| Total Percent | | 100 |

*A shortcoming of this data is that courses in communications skills were not included as an alternative.

TABLE A-28

COURSES APPRENTICES SURVEYED WISHED THEY HAD TAKEN*

| | Number N=442 | Percent |
|---|---|---|
| Mathematics | 94 | 22 |
| Vocational Education | 250 | 56 |
| Other | 25 | 6 |
| None | 73 | 17 |
| Total Percent | | 100 |

*A shortcoming of this data is that courses in communications skills were not included as an alternative.

TABLE A-29

PROBLEMS WITH RELATED COURSE INSTRUCTION IDENTIFIED BY APPRENTICES SURVEYED, BY RACE/ETHNIC GROUP

| | | | Race/Ethnic Group (Percent) | | | | |
|---|---|---|---|---|---|---|---|
| | Number N=304 | Percent | White N=259 | Black N=26 | American Indian N=7 | Spanish Origin N=10 | Oriental N=2 |
| Transportation to the location of my related course of instruction | 19 | 6 | 7 | 8 | 0 | 0 | 0 |
| Distance to the location of my related course of instruction | 37 | 12 | 12 | 12 | 29 | 10 | 0 |
| Cost of related instruction materials (books, etc.) | 11 | 4 | 4 | 0 | 0 | 0 | 0 |
| Understanding the materials my instructor covers | 20 | 7 | 7 | 4 | 0 | 10 | 0 |
| Understanding my instructor because English is not my first language | 2 | 1 | 0 | 0 | 0 | 10 | 0 |
| Keeping up with the course work | 7 | 2 | 2 | 4 | 0 | 0 | 0 |
| Applying what I learn in related course instruction to work I do on the job | 51 | 17 | 16 | 19 | 29 | 20 | 0 |
| No problem areas | 128 | 42 | 41 | 42 | 43 | 50 | 100 |
| Other | 29 | 10 | 10 | 12 | 0 | 0 | 0 |
| Total Percent | | | 100 | 100 | 100 | 100 | 100 |